1. Transcatheter arterial embolization is an acceptable alternative to pretransplant native nephrectomy for patients with:

   A. Goodpasture syndrome.
   B. severe proteinuria.
   C. vesicoureteral reflux.
   D. symptomatic polycystic kidneys.
   E. a history of pyelonephritis.

2. Two days after undergoing SWL for a 2 cm right renal pelvic stone, a 38-year-old man has fever to 101.5° F, flank pain, nausea and vomiting. An IVP shows delayed excretion into a moderately dilated right collecting system with contrast to the level of the distal ureter where an obstructing 3 cm column of fragments is present. There is a 5 mm lead fragment at the distal end of the steinstrasse. The next step is:

   A. percutaneous nephrostolithotomy.
   B. SWL of the lead fragment.
   C. ureteroscopy and laser lithotripsy.
   D. ureteral stent.
   E. percutaneous nephrostomy.

3. Compared with radical perineal prostatectomy, radical retropubic prostatectomy provides a wider surgical margin:

   A. laterally.
   B. anteriorly.
   C. apically.
   D. at the bladder neck.
   E. at the seminal vesicles.

4. A 56-year-old man has a well-functioning cadaveric renal transplant. He is an insulin-dependent diabetic and develops chronic symptomatic urinary retention. Bladder emptying does not improve with alpha-adrenergic blockade or TURP. The most appropriate management is:

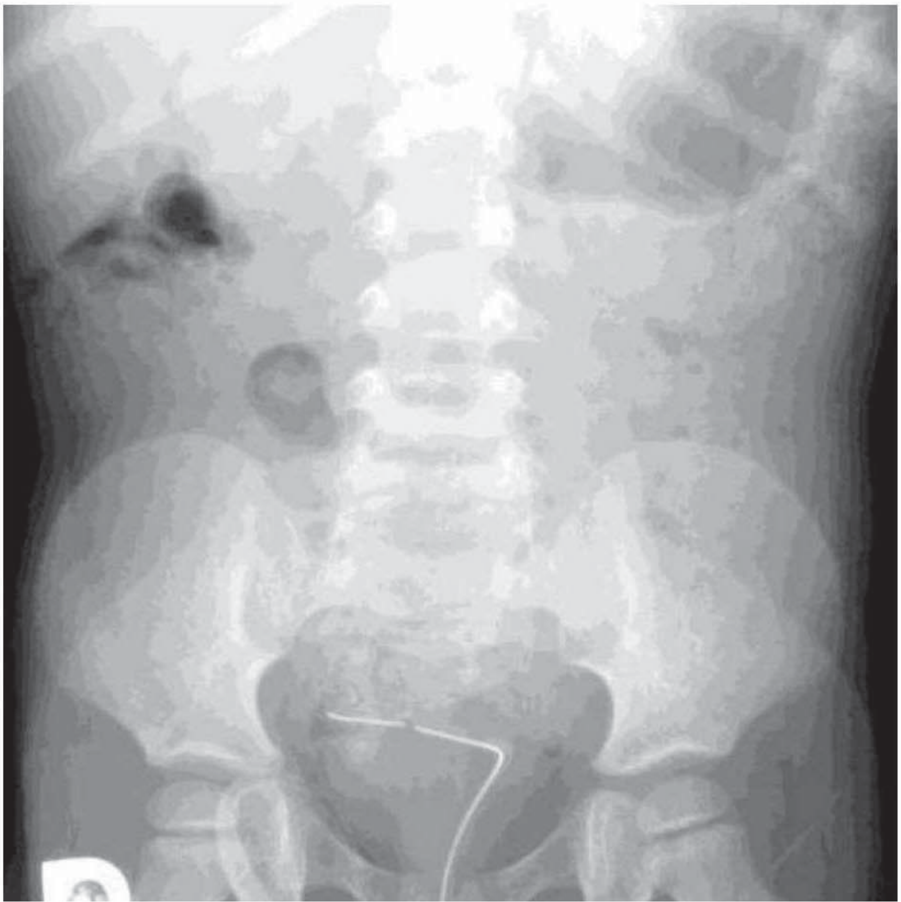
   A. sterile intermittent catheterization.
   B. clean intermittent catheterization.
   C. prostatic stent.
   D. repeat TURP.
   E. bethanechol.

5. Which urine sample should be collected for pH testing to establish the diagnosis of renal tubular acidosis:

   A. fasting.
   B. postprandial.
   C. diurnal.
   D. nocturnal.
   E. hydrated.

6. A seven-year-old boy has encopresis, enuresis and delayed motor development. Physical examination, urinalysis, and renal sonogram are normal. A KUB is shown in the exhibit. The next step is:

A. observation.
B. timed voiding and voiding diary.
C. enemas and oral laxatives.
D. spinal MRI scan.
E. cystoscopy.



7. A 32-year-old muscular man with a BMI of 31 underwent a prolonged left transperitoneal laparoscopic donor nephrectomy in the lateral decubitus position. Two hours later, he has increasing right flank pain and swelling. There is reddish discoloration in the flank. His urine is brownish-red with 200 cc output since surgery. The next step is:

A. electrolytes and creatine kinase.
B. coagulation studies.
C. I.V. ketorolac.
D. I.V. vancomycin.
E. immediate re-exploration.

8. The metabolic defect primarily responsible for urolithiasis in a patient with short bowel syndrome is:

A. systemic acidosis with hypocitraturia.
B. enteric hyperoxaluria.
C. hypomagnesiuria.
D. secondary hyperparathyroidism.
E. absorptive hypercalciuria.

9. A 31-year-old man has several small, asymptomatic papules on the distal shaft of the penis. Biopsy of one of the lesions reveals Bowenoid papulosis. The next step is:

A. observation.
B. laser ablation.
C. topical 5-FU.
D. wide excision of lesions.
E. Mohs surgery.

10. Urinary incontinence following radical prostatectomy most frequently results from functional deficiency of the:

A. levator ani muscle.
B. bladder neck.
C. proximal urethral musculature.
D. rhabdosphincter.
E. bulbocavernosus muscle.

11. The predominant renal histologic change noted in experimental studies after SWL is:

A. glomerulosclerosis.
B. tubular necrosis.
C. proliferative nephritis.
D. interstitial fibrosis.
E. nephrosclerosis.

12. A 76-year-old man has hip pain after a fall. Seven years ago, he had a bilateral orchiectomy for T3 prostate cancer. A plain film demonstrates a nonpathologic fracture. PSA is undetectable. The next step is:

A. observation.
B. bone scan.
C. bone densitometry.
D. antiandrogen.
E. local radiotherapy.

13. COX-2 inhibitor administration alters ureteral function by:

A. decreasing contractility.
B. increasing sensitivity of nociceptors.
C. decreasing arachidonic acid levels.
D. reducing 15-hydroxyprostaglandin dehydrogenase activity.
E. increasing cyclooxygenase activity.

14. A 65-year-old woman on warfarin for recurrent pulmonary emboli has cystitis. The drug least likely to cause enhanced anticoagulation:

A. tetracycline.
B. nitrofurantoin.
C. ciprofloxacin.
D. chloramphenicol.
E. sulfamethoxazole.

15. A 54-year-old woman undergoes an ileocecal pouch cutaneous urinary diversion two years after pelvic radiation for cervical cancer. Four months later, she has right lower quadrant pain and fecaluria. A pouchogram reveals contrast extending into the colon adjacent to the pouch. The next step is:

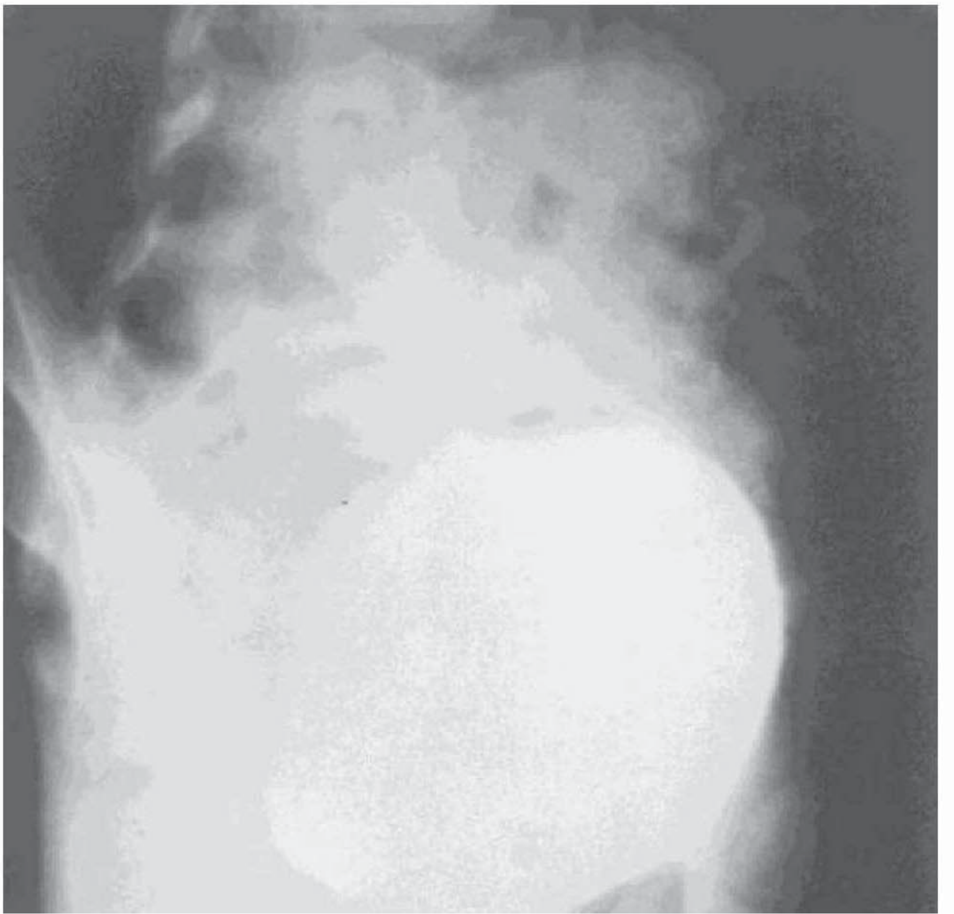
A. hyperalimentation.
B. bilateral nephrostomy drainage.
C. pouch endoscopy and fulguration of fistula.
D. catheter drainage and low residue diet.
E. colonoscopy.

16. The factor most responsible for ureteral dilation during pregnancy is:

A. mechanical compression by the uterus.
B. elevated estradiol levels.
C. elevated progestin levels.
D. placental hormones.
E. increased urine flow.

17. A six-year-old girl with recurrent symptomatic UTIs has a normal renal ultrasound. A VCUG is shown in the exhibit. The next step is prophylactic antibiotics and:

A. timed voiding.
B. urethral meatotomy.
C. internal urethrotomy.
D. urethral dilation.
E. alpha-blockers.



18. A 69-year-old man has T2b Gleason 7 (4+3) prostate cancer and a prostate volume of 30 cc. PSA is 16.5 ng/ml. CT scan of the pelvis and bone scan are negative. He has elected radioactive seed implantation. The most appropriate treatment regimen is:

A. ^{125}I implant alone.
B. ^{103}P implant alone.
C. leuprolide and seed implant.
D. seed implant and external beam radiation.
E. leuprolide, seed implant and external beam radiation.

19. The majority of ejaculatory fluid originates in the:

A. prostate.
B. ejaculatory ducts.
C. seminal vesicles.
D. Cowper's glands.
E. testes.

20. A 72-year-old woman has had six urinary tract infections over the past year. These infections return shortly after antibiotic courses are concluded, and cultures have demonstrated significant colony counts of E. coli. Renal sonogram is normal. The next step is:

A. ciprofloxacin prophylaxis.
B. nitrofurantoin prophylaxis.
C. oral low dose estrogen.
D. intravaginal estrogen.
E. lactobacillus.

21. The most substantial risk of mitoxantrone therapy for prostate cancer is:

A. cardiotoxicity.
B. myelosuppression.
C. pulmonary toxicity.
D. hepatotoxicity.
E. renal toxicity.

22. In a chronically obstructed ureter, impaired urine transport is primarily due to decreased:

A. ureteral wall tension.
B. intraluminal resting pressure.
C. intraluminal contractile pressure.
D. pacemaker coupling.
E. ureteral dimension.

23. The treatment of idiopathic oligospermia with human chorionic gonadotropin is most likely to result in:

A. elevation of serum testosterone.
B. increased sperm concentration.
C. improved sperm motility.
D. increased pregnancy rate.
E. increased seminal volume.

24. The best predictor of long-term disease-free survival after salvage prostatectomy is:

A. Gleason score < 8.
B. serum PSA nadir < 0.5 ng/ml.
C. non-palpable tumor.
D. serum PSA velocity < 2.0 ng/ml/year.
E. serum PSA < 10 ng/ml.

25. Epsilon-aminocaproic acid (Amicar) is useful in treating post-prostatectomy hemorrhage by:

A. increasing production of fibrin from fibrinogen.
B. increasing production of plasmin from plasminogen.
C. decreasing activation of plasminogen by urokinase.
D. decreasing production of fibrinogen.
E. decreasing production of urokinase.

26. A 36-year-old infertile man had a right inguinal herniorrhaphy at age four years and a left varicocelectomy three years ago. His testicular volume is 30 ml on the right and 16 ml on the left without evidence of a varicocele. Semen analysis reveals normal ejaculate volume, 3 million sperm/ml, and 20% motility. Serum FSH is normal and antisperm antibody testing is positive. The next step is:

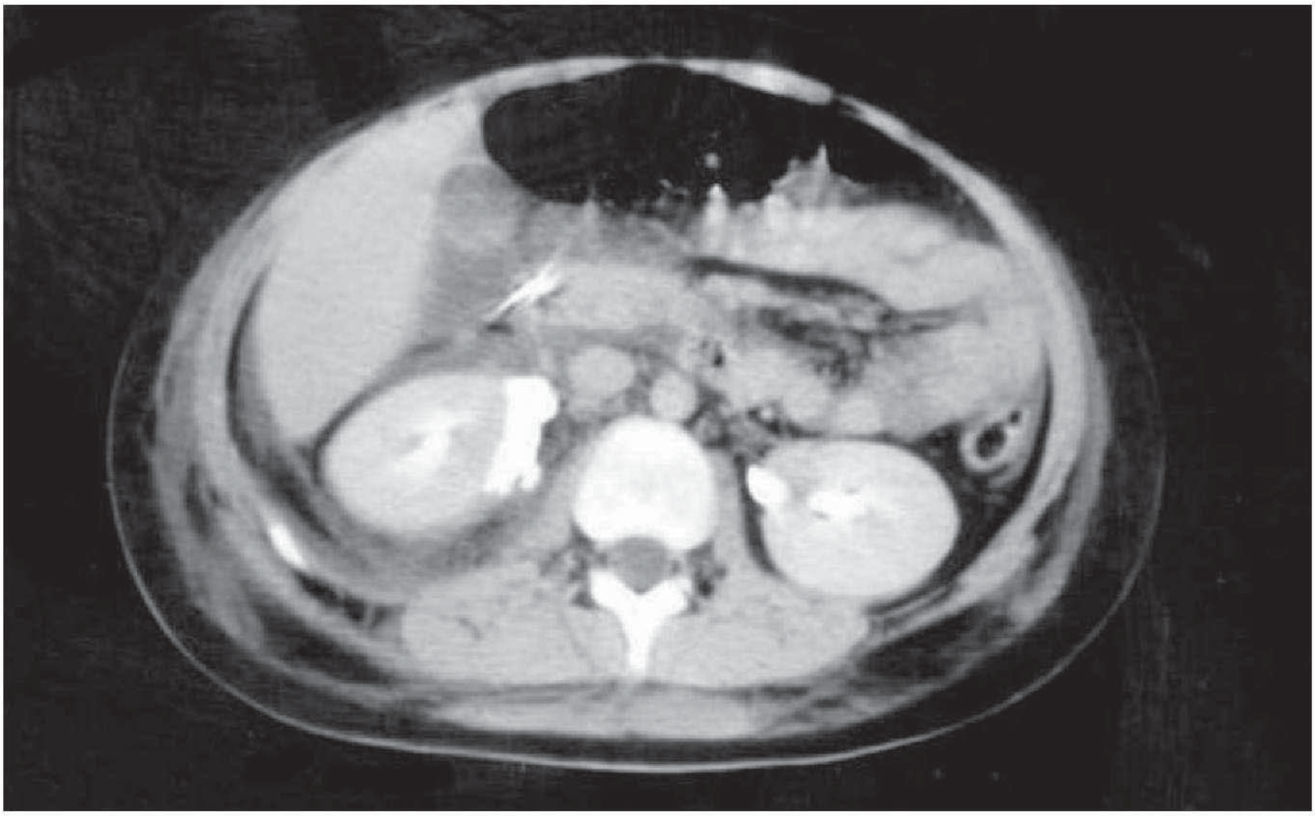
A. bilateral testicular biopsy.
B. scrotal color Doppler ultrasonography.
C. scrotal exploration and vasography.
D. transrectal ultrasonography.
E. venography.

27. A 68-year-old woman has nocturia x3, persistent suprapubic pain, urgency and daytime frequency after her third BCG instillation for recurrent Stage Ta bladder cancer. A urinalysis reveals 5-10 RBC and 10-20 WBC/hpf. A urine culture is negative. The next step is:

A. space remaining treatments two weeks apart.
B. ciprofloxacin.
C. decrease weekly intravesical dose of BCG by 50 percent.
D. oral isoniazid therapy with BCG treatments.
E. oral oxybutynin.

28. A 12-year-old boy sustains a flexion-extension injury to the spine and has gross hematuria following a motor vehicle accident. A CT scan is shown in the exhibit. There is no contrast seen in the distal ureter. The next step is:

A. observation.
B. flank exploration and nephrectomy.
C. placement of percutaneous nephrostomy.
D. retrograde pyelogram and repair of injury.
E. exploration and right to left transureteroureterostomy.



29. A 30-year-old man underwent a unilateral orchiectomy and received two cycles of cisplatin based chemotherapy for a high risk Stage I nonseminomatous germ cell tumor. Two years after treatment, he is likely to have:

A. decreased fertility and erectile function.
B. no change in fertility and decreased erectile function.
C. decreased fertility and ejaculatory dysfunction.
D. decreased fertility and no change in erectile function.
E. no change in fertility or erectile function.

30. A 65-year-old patient receives two consecutive six-week courses of intravesical BCG for a Grade III T-1 transitional cell carcinoma of the bladder. One year after his last BCG dose, cystoscopy and biopsy demonstrate recurrent high Grade T1 disease. The next step is:

A. radical cystoprostatectomy.
B. repeat transurethral resection.
C. intravesical mitomycin C.
D. intravesical alpha interferon.
E. six weeks of BCG followed by maintenance therapy.

31. The nephrotoxic effect of cisplatin is due to:

A. efferent arteriolar constriction.
B. afferent arteriolar constriction.
C. pre-existing plasma volume contraction.
D. a direct toxic effect on renal tubular cells.
E. renal tubular obstruction from drug precipitation.

32. A 27-year-old couple has not conceived after one year of appropriately timed intercourse. The man has a sperm count of 30 million with 60% motility and 20% strict normal morphology. The women has normal ovulation and menstruation. She has no history of pelvic infections or abdominal surgery. The chance of spontaneously conceiving in the next year is:

A. 5%.
B. 10%.
C. 25%.
D. 50%.
E. 80%.

33. A 68-year-old man receives two six-week courses of intravesical BCG for recurring superficial bladder tumors. He is asymptomatic, but a new firm area in the prostate gland is noted on digital rectal examination. The serum PSA is 3.1 ng/ml. A transrectal ultrasound-guided biopsy of the prostatic lesion reveals a caseating granuloma. The most appropriate management is:

A. observation.
B. isoniazid for six months.
C. cycloserine for six weeks.
D. isoniazid and rifampin for three months.
E. isoniazid, rifampin, and cycloserine for six months.

34. Six months following implantation of an artificial sphincter, a 22-year-old myelodysplastic man has bilateral ureteral dilation by ultrasound. The diagnostic study most likely to reveal the cause of the problem is:

A. CMG.
B. diuretic renogram.
C. antegrade pressure/perfusion study.
D. repeat ultrasound after catheter drainage.
E. IVP.

35. Necrotizing fasciitis of the external genitalia in men is most frequently associated with invasive infections of the:

A. epididymis.
B. urethra.
C. prostate.
D. preputial skin.
E. testis.

36. A 75-year-old man undergoes a TURP for obstructive voiding symptoms. He was treated three years ago with intravesical BCG therapy for a superficial transitional cell carcinoma of the bladder, and has not had any tumor recurrence. The TUR specimen reveals benign prostatic hyperplasia and transitional cell carcinoma in situ of the prostatic urethra. There is no evidence of ductal or stromal invasion. The most appropriate management is:

A. repeat BCG therapy.
B. mitomycin C therapy.
C. repeat TURP.
D. cystoscopy and cytology in three months.
E. radical cystoprostatectomy and urethrectomy.

37. An intoxicated 45-year-old man is evaluated in the emergency room for abdominal pain. Physical examination reveals no abnormalities other than ecchymoses over the lower abdomen. The blood pressure is 160/80 mm Hg, pulse 70, respirations 20, temperature 37.5° C. A plain film of the abdomen shows a "ground glass" appearance. Initial blood studies reveal: HCT 32%, WBC 15,800, Na 122 mEq/l, K 6.0 mEq/l, Cl 109 mEq/l, CO_2 13 mEq/l, BUN 80 mg/dl, and creatinine 4.3 mg/dl. A Foley catheter is placed but there is no urinary output. The next step is:

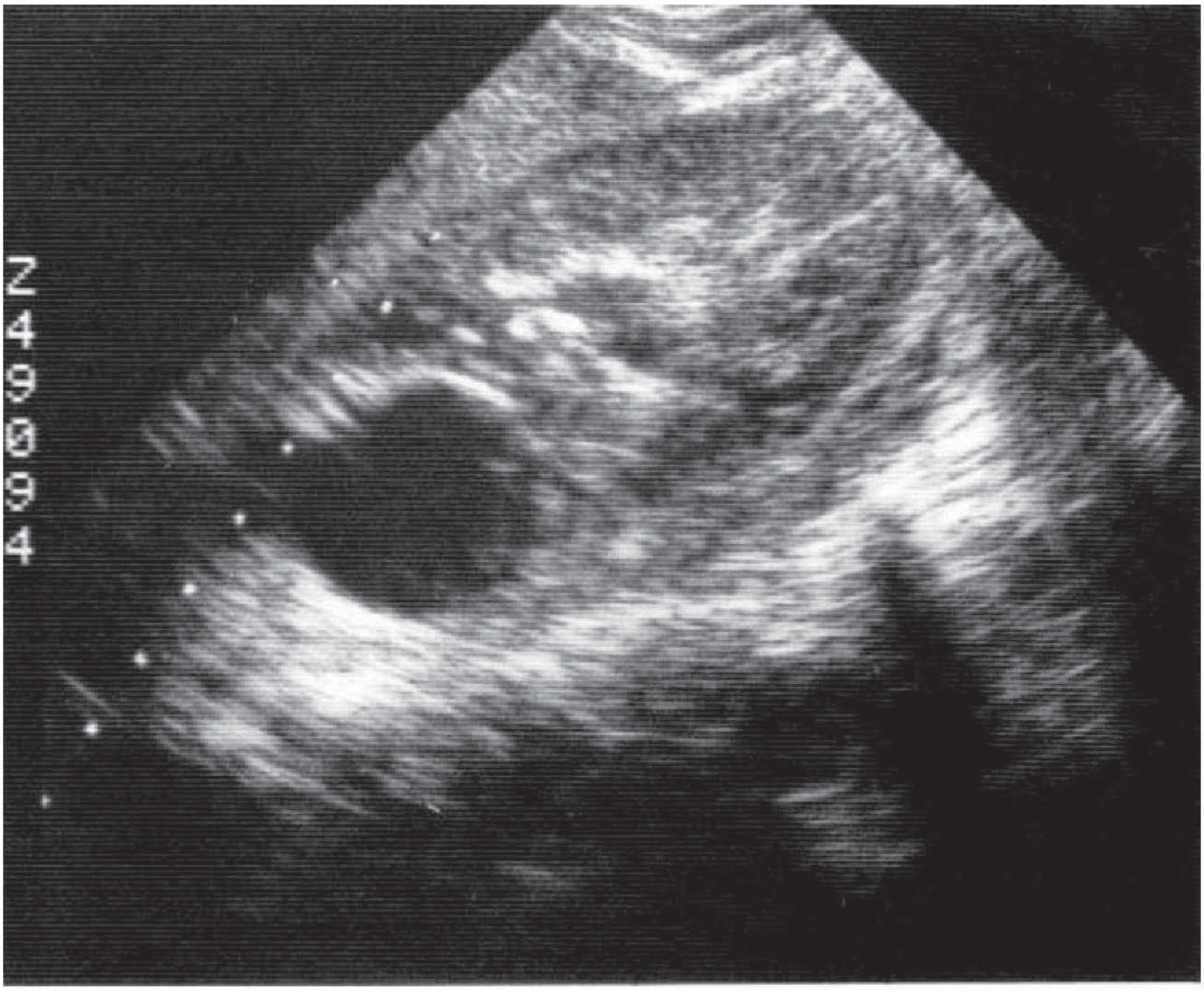
A. Kayexalate and furosemide.
B. cystogram.
C. renogram.
D. non-contrast CT scan.
E. paracentesis.

38. The efficacy of amphotericin B bladder irrigations for localized Candidal infection is reduced by:

A. an alkaline urine.
B. concomitant use of sulfonamide therapy.
C. an acid urine.
D. use of non-siliconized catheters for drainage.
E. presence of bacterial infection in the urine.

39. A seven-year-old girl has a UTI. A longitudinal renal ultrasound is shown in the exhibit. The diagnosis is:

A. ureteropelvic junction obstruction.
B. duplication with upper pole hydronephrosis.
C. multicystic renal dysplasia.
D. acute lobar nephronia.
E. polycystic renal disease.



40. A 58-year-old man has incontinence and prolonged urination six months following radical retropubic prostatectomy. Urodynamic evaluation with a 10 Fr catheter demonstrates normal bladder capacity and no detrusor instability. At 250 ml, Valsalva maneuver increases bladder pressure to 150 cm H_2O without evidence of urinary leakage. The etiology of the incontinence is best determined by:

A. remove catheter and repeat Valsalva maneuver.
B. repeat urodynamic study with suprapubic catheter.
C. uroflowmetry.
D. retrograde urethrogram.
E. cystoscopy.

41. A 55-year-old woman has two episodes of gross hematuria. Multiple urine cultures are sterile. On cystoscopic examination, a nodular lesion is identified at the bladder outlet and is biopsied. Histologic evaluation reveals a granulomatous lesion with laminated concretions within the cytoplasm of macrophages. The best treatment for the condition is:

A. bethanechol chloride.
B. antibiotic therapy.
C. radiation therapy.
D. partial cystectomy.
E. tamsulosin.

42. A 38-year-old woman undergoes amniocentesis at 24 weeks gestation. The fetal karyotype is 45 X/46 XY. The gonads will most likely be:

A. bilateral streak gonads.
B. streak gonad and testis.
C. streak gonad and ovary.
D. streak gonad and dysgenetic testis.
E. bilateral testes.

43. A 55-year-old multiparous woman has urge incontinence. Urinalysis is normal and physical examination demonstrates a Grade 3 cystocele. Urodynamics reveal a postvoid residual of 100 ml, involuntary bladder contractions with incontinence, and a detrusor pressure at maximum flow (8 ml/sec) of 50 cm H_2O. When the cystocele is reduced, no stress urinary incontinence can be elicited. The next step is:

A. oxybutynin.
B. doxazosin.
C. pubovaginal sling.
D. anterior colporrhaphy.
E. pubovaginal sling and anterior colporrhaphy.

44. In women with uncomplicated cystitis, the greatest increase in E. coli resistance over the last decade has occurred with:

A. ampicillin.
B. nitrofurantoin.
C. cefazolin.
D. trimethoprim-sulfamethoxazole.
E. ciprofloxacin.

45. A 52-year-old man has lethargy and weakness. His serum laboratory values are: sodium 115 mEq/l, potassium 4.5 mEq/l, chloride 80 mEq/l, CO_2 23 mEq/l, BUN 8 mg/dl, creatinine 0.8 mg/dl, uric acid 2.9 mg/dl. The most likely diagnosis is:

A. Addison's disease.
B. congestive heart failure.
C. cirrhosis with ascites.
D. inappropriate antidiuretic hormone secretion.
E. chronic diarrhea.

46. A 47-year-old African-American woman has left flank pain and hematuria. Urine culture and cytology are negative. An IVP reveals a single area of calyceal cavitation on the left, and during cystoscopy blood is seen from that orifice. Hemoglobin electrophoresis is consistent with sickle cell trait. The next step is:

A. hypertransfusion.
B. epsilon aminocaproic acid.
C. rest, hydration, and alkalinization.
D. ureteroscopy and fulguration.
E. angiography and selective embolization.

47. A 42-year-old man is being treated with six months of INH for BCG sepsis. To prevent neuropathy, he should be given:

A. ascorbic acid.
B. pyridoxine.
C. nicotinic acid.
D. Vitamin B12.
E. folic acid.

48. A 57-year-old woman is evaluated for polyuria with daily urine output of 4-8 liters. The history and physical examination are unremarkable, and urinalysis is normal. Serum glucose is 100 mg/dl, and serum creatinine is 0.9 mg/dl. Urine osmolality is 100 mOsm/l, and plasma osmolality is 270 mOsm/l. After 12 hours of dehydration, the urine osmolality is 700 mOsm/l. After vasopressin (ADH) is administered, urine osmolality increases to 1000 mOsm/l. The most likely diagnosis is:

A. inappropriate ADH secretion.
B. partial ADH deficiency.
C. Bartter syndrome.
D. psychogenic polydipsia.
E. nephrogenic diabetes insipidus.

49. Stage III prolapse in the Pelvic Organ Prolapse Quantitative (POPQ) system is when:

A. the most distal portion of the prolapse is 1 cm or less proximal or distal to the hymenal plane.
B. the most distal portion of the prolapse is 1 cm or less proximal or distal to the introitus.
C. the most distal portion of the prolapse protrudes more than 1 cm below the hymen but the entire vagina is not prolapsed.
D. the most distal portion of the prolapse protrudes more than 1 cm below the introitus but the entire vagina is not prolapsed.
E. there is complete vaginal eversion.

50. The fluoroquinolone most likely to alter blood glucose levels in an elderly diabetic is:

A. ciprofloxacin.
B. levofloxacin.
C. norfloxacin.
D. gatifloxacin.
E. ofloxacin.

51. The site of origin associated with the worst prognosis in rhabdomyosarcoma is:

A. uterus.
B. prostate.
C. vagina.
D. spermatic cord.
E. bladder.

52. A 45-year-old woman has urge incontinence one year following a sling procedure. Residual urine is 180 ml. Voiding pressure is 64 cm H_2O. No stress incontinence is demonstrable on a videourodynamic study. Treatment should be:

A. alpha-blockers.
B. anticholinergics.
C. clean intermittent catheterization.
D. imipramine and timed voiding.
E. urethrolysis.

53. A 71-year-old man has urinary frequency and dysuria. WBC is 14,000 and his temperature is 39.2° C. Bladder ultrasound shows no residual urine. Dipstick urinalysis is nitrite and leukocyte-esterase positive. Appropriate initial antibiotic treatment is:

A. fosfomycin (Monurol).
B. trimethoprim-sulfamethoxazole.
C. ampicillin.
D. nitrofurantoin.
E. levofloxacin.

54. Pathologic, as opposed to physiologic, post-obstructive diuresis results from:

A. impaired concentrating ability.
B. increased urea and sodium excretion.
C. increased free water clearance.
D. decreased prostaglandin excretion.
E. decreased angiotensin II secretion.

55. A 48-year-old woman with stress urinary incontinence after a hysterectomy undergoes a Burch urethral suspension. Preoperatively, the physical examination was normal except for urethral hypermobility. Postoperatively, she is continent but has a vaginal mass and pelvic pressure. The most likely diagnosis is:

A. cystocele.
B. enterocele.
C. rectocele.
D. vaginal vault prolapse.
E. urethral diverticulum.

56. A 68-year-old diabetic woman is hospitalized for renal insufficiency. Three days after a catheter is placed, the patient has fever and right flank pain. Urinalysis demonstrates pyuria and fungal elements. CT scan shows no obstruction or perinephric fluid collections. The next step is:

A. observation.
B. amphotericin B bladder irrigation.
C. I.V. fluconazole for ten days.
D. I.V. amphotericin B for four days.
E. I.V. flucytosine for five days.

57. A 55-year-old man with a history of gout passes multiple calcium oxalate calculi. Urine pH consistently measures 5.3 to 5.5. An IVP is normal except for the presence of two small radiopaque, non-obstructing renal calculi. The next step is:

A. sodium cellulose phosphate.
B. hydrochlorothiazide.
C. allopurinol.
D. potassium citrate.
E. trichlormethiazide.

58. A 76-year-old man with chronic atrial fibrillation undergoes abdominal arteriography for evaluation of renovascular hypertension and peripheral vascular disease. One day later he has severe hypertension, an increase in serum creatinine from 1.5 to 3.8 mg/dl, and punctate infarcts in his fingers and toes. The most likely cause is:

A. emboli from atrial thrombus.
B. cholesterol embolization.
C. renal artery dissection.
D. disseminated intravascular coagulation.
E. aortic dissection.

59. The antibiotic excreted predominantly in the gastrointestinal tract is:

A. doxycycline.
B. erythromycin.
C. minocycline.
D. ciprofloxacin.
E. levofloxacin.

60. A patient who has been tolerating total parenteral nutrition for two weeks suddenly develops severe glucosuria. The most likely cause is:

A. early development of sepsis.
B. administration of excess glucose.
C. reduction of energy needs in a stressed patient.
D. development of insulin antibodies.
E. pancreatic failure.

61. The finding most suggestive of renal artery stenosis on duplex ultrasonography is:

A. decreased diastolic flow.
B. turbulent systolic flow.
C. increased peak systolic velocity.
D. renal aortic ratio < 3.5.
E. resistive index < 0.8.

62. A 70-year-old hypogonadal man is taking therapeutic doses of dehydroepiandrosterone (DHEA) for androgen replacement. This treatment will result in:

A. decreased testosterone levels.
B. decreased estradiol levels.
C. decreased PSA levels.
D. increased dihydrotestosterone levels.
E. decreased pregnenolone levels.

63. The major site of action of aldosterone in the kidney is the:

A. proximal tubule.
B. juxtaglomerular apparatus.
C. ascending portion of Henle's loop.
D. collecting duct.
E. distal tubule.

64. A 55-year-old woman underwent a midurethral sling for stress incontinence five months ago. She now has dysuria, urgency and frequency despite antibiotic treatment for two documented UTIs. Urinalysis reveals 2-3 RBC/hpf. Pelvic ultrasonography reveals a postvoid residual of 50 ml. The next step is:

A. IVP.
B. uroflowmetry.
C. filling cystometry.
D. VCUG.
E. cystoscopy.

65. GnRH agonist therapy for stage D1 prostate cancer will promote:

A. increased fat mass and decreased bone density.
B. decreased fat mass and decreased bone density.
C. decreased fat mass and increased bone density.
D. decreased body weight and decreased fat density.
E. increased body weight and increased bone density.

66. An eight-year-old boy was treated for lipomyelomeningocele at birth. He is on clean intermittent catheterization every four hours and oxybutynin 5 mg BID. He develops new incontinence. The next step is:

A. urodynamics.
B. MRI scan of spine.
C. increase catheterization frequency.
D. increase anticholinergics.
E. start imipramine.

67. The earliest finding in diabetic voiding dysfunction is:

A. increased bladder capacity.
B. decreased bladder sensation.
C. impaired detrusor contractility.
D. high bladder compliance.
E. decreased uroflow.

68. Pheochromocytomas that occur in association with the multiple endocrine adenoma (MEA) syndromes differ from sporadic pheochromocytomas in that:

A. bilateral occurrence is more common.
B. paroxysmal attacks occur more frequently.
C. extra-adrenal sites are more common.
D. hypertension is more severe.
E. secretion of norepinephrine alone is more common.

69. Percutaneous renal biopsy is contraindicated in a ten-year-old boy with:

A. severe hypertension.
B. nephrotic syndrome.
C. rapidly progressive glomerulonephritis.
D. a transplant kidney.
E. IgA nephropathy.

70. One month after L-5 laminectomy, a 30-year-old woman develops lower extremity weakness, a residual urine of 300 ml, and intermittent urinary stream. Videourodynamics demonstrates detrusor-sphincter dyssynergia. The most likely explanation is:

A. pseudodyssynergia.
B. recurrent lumbar disk.
C. cauda equina syndrome.
D. undiagnosed multiple sclerosis.
E. permanent nerve injury from disk.

71. A 25-year-old sexually active woman has asymptomatic bacteriuria. A clean catch midstream urine culture demonstrates > 10^5 E. coli CFU/ml. The next step is:

A. observation.
B. renal ultrasound.
C. catheterized urine culture.
D. antibiotic therapy.
E. cystoscopy.

72. Renal function in the newborn is similar to that in the adult with regard to:

A. free water clearance.
B. urinary concentration.
C. glomerular filtration rate.
D. bicarbonate reabsorption.
E. urinary acidification.

73. A 61-year-old woman becomes incontinent immediately after transvaginal repair of a Grade III cystocele. This is most likely due to:

A. detrusor instability.
B. partial bladder denervation.
C. underlying urethral deficiency.
D. surgical damage to the urethral sphincter.
E. bladder neck and proximal urethral obstruction.

74. Normal vaginal flora such as lactobacillus protect the estrogenized vaginal vestibule from Enterobacteriaceae colonization by:

A. maintenance of alkaline pH.
B. increasing secretory IgA production.
C. production of zinc containing antibacterial factor.
D. blockade of bacterial adherence.
E. increasing oogonial IgG production.

75. A seven-year-old girl has diurnal enuresis that is not associated with infection. She has marked constipation and encopresis. Her physical examination reveals a normal appearing spine, and a normal neurologic examination. Her bladder is not percussible, and urinalysis is normal. The next step is timed voiding and:

A. spinal MRI scan.
B. VCUG.
C. urodynamic evaluation.
D. oxybutynin.
E. laxatives/enemas.

76. A 35-year-old T-10 paraplegic man who has managed his bladder for five years using a condom catheter has mild bilateral hydroureteronephrosis. CMG demonstrates a progressive increase in bladder pressure with filling, until a pressure of 60 cm H_2O is achieved at 200 ml. The most appropriate treatment is:

A. bladder augmentation.
B. clean intermittent catheterization and anticholinergics.
C. external sphincterotomy.
D. bethanechol.
E. alpha blocker.

77. A 49-year-old diabetic woman has acute left flank pain. Blood pressure is 96/50 and pulse 118. Serum creatinine is 1.3 mg/dl and hemoglobin 9.8 g/dl. CT scan demonstrates a 5 cm solid lower pole mass and large left perirenal hematoma. Precontrast images of the mass measure -54 HU which enhances following I.V. contrast. The right kidney is normal. The next step is:

A. observation with follow-up CT scan.
B. selective renal arterial embolization.
C. percutaneous radiofrequency ablation.
D. partial nephrectomy.
E. total nephrectomy.

78. Paternity potential in males with spina bifida correlates positively with:

A. serum testosterone level.
B. sacral neurologic level of lesion.
C. reflexogenic erections.
D. shunt-dependent hydrocephalus.
E. glans penis sensation.

79. The failure of bethanechol for the treatment of incomplete voiding relates to:

A. patient compliance.
B. visual disturbances.
C. poor GI absorption.
D. discoordinated contraction of bladder, bladder neck and urethra.
E. predominance of M-1 muscarinic receptors in the bladder.

80. A 19-year-old man has headaches, polydipsia, and polyuria. He has hypokalemia and an elevated peripheral vein renin. Abdominal CT scan demonstrates a 2 cm mass adjacent to or involving the upper pole of the right kidney; the left kidney is normal. The most likely diagnosis is:

A. adrenal cortical carcinoma.
B. juxtaglomerular cell tumor.
C. pheochromocytoma.
D. renal cell carcinoma.
E. aldosteronoma.

81. A two-month-old girl with a high myelomeningocele closed at birth is managed with diaper voiding. She recently had a febrile UTI. Videourodynamics shows bilateral Grade V reflux, a thick-walled bladder, and leakage around a 5 Fr urethral catheter at 40 ml volume and 50 cm H_2O pressure. The next step is:

A. vesicostomy.
B. conduit diversion.
C. antibiotics and oxybutynin.
D. augmentation and bilateral reimplants.
E. bilateral reimplants and clean intermittent catheterization.

82. An 85-year-old man has bothersome lower urinary tract symptoms. He underwent TURP 12 years ago. Urinalysis and urine cytology are negative. The most important test before considering repeat TURP is:

A. serum creatinine.
B. residual urine.
C. urine flow rate.
D. cystoscopy.
E. pressure-flow study.

83. Patients with von-Hippel Lindau disease most frequently have:

A. renal angiomyolipoma.
B. cafe au lait spots.
C. glioblastomas.
D. thyroid carcinoma.
E. retinal angiomas.

84. A 13-year-old boy falls from a tree and develops gross hematuria. CT scan shows a left renal laceration extending into the collecting system with significant urinary extravasation. Contrast is seen in the distal ureter. Three weeks following the injury, he develops a low grade fever, an ileus and a tender distended abdomen. CT scan shows a large left urinoma. The next step is:

A. placement of urethral catheter.
B. percutaneous nephrostomy drainage.
C. open surgical drainage and renorrhaphy.
D. percutaneous drainage of the urinoma.
E. placement of a ureteral stent.

85. The risks of acute urinary retention and the need for BPH related surgery are significantly reduced by:

A. saw palmetto.
B. doxazosin.
C. Serenoa repens.
D. doxazosin and Serenoa repens.
E. finasteride and doxazosin.

86. The most frequent complications associated with the use of mitomycin C for intravesical therapy are:

A. chemical cystitis and rash.
B. myelosuppression and rash.
C. flu-like symptoms and myelosuppression.
D. contracted bladder and chemical cystitis.
E. myelosuppression and chemical cystitis.

87. The most likely pattern of hormonal secretion in a 46-year-old woman with Cushing syndrome from an adrenal adenoma is:

	Corticotrophin Releasing Hormone	**ACTH**
A.	↓	↑
B.	↑	↑
C.	↑	↓
D.	↓	↓
E.	↔	↔

88. A 28-year-old paraplegic man had a sphincterotomy seven years ago and wears a condom catheter. During an evaluation for renal insufficiency, renal ultrasonography reveals bilateral hydroureteronephrosis. The study most predictive of this complication is:

A. EMG.
B. CMG.
C. Valsalva leak point pressure.
D. detrusor leak point pressure.
E. urethral pressure profilometry.

89. A 65-year-old man has a large renal mass. An abdominal CT scan and a bone scan show no metastases. Serum alkaline phosphatase and liver function studies are normal, and the serum calcium is 11.2 mg/dl. The next step is:

A. serum parathyroid related protein.
B. ultrasound of neck.
C. MRI scan of abdomen.
D. MRI skeletal survey.
E. chest CT scan.

90. A four-year-old boy fell from a second story window. On examination, his vital signs are stable, but he has right flank and upper quadrant abdominal tenderness and fullness. He does not have peritoneal signs. Urinalysis is negative. The next step is:

A. observation.
B. abdominal paracentesis.
C. abdominal and renal ultrasound.
D. IVP.
E. abdominal CT scan.

91. Prostaglandin E1 relaxes corporal cavernosal smooth muscle by:

A. releasing nitric oxide.
B. blocking calcium efflux.
C. raising cyclic GMP.
D. raising cyclic AMP.
E. opening potassium channels.

92. A healthy 50-year-old man with gross hematuria has a peripherally located 4 cm solid mass in a solitary kidney. The serum creatinine is 1.2 mg/dl. CT scan demonstrates a 1 cm renal vein tumor thrombus. There is no evidence of metastasis. The next step is:

A. radiofrequency ablation.
B. laparoscopic cryoablation.
C. partial nephrectomy.
D. radical nephrectomy.
E. systemic immunotherapy.

93. Persistent urinary incontinence following resection of posterior urethral valves is most frequently due to:

A. detrusor instability.
B. vesicoureteral reflux.
C. non-compliant bladder.
D. incompetent bladder neck.
E. damaged external urethral sphincter.

94. A 58-year-old diabetic man has a tender, fixed scrotal pump two weeks after insertion of an inflatable penile prosthesis. There is no purulent drainage from the wound. Serum glucose is 450 mg/dl, serum bicarbonate is 10 mM/l, and WBC is 15,000. His urine is positive for ketones. The next step is intravenous antibiotics and:

A. continued observation.
B. scrotal ultrasonography.
C. pelvic MRI scan.
D. salvage replacement of the prosthesis.
E. removal of the prosthesis.

95. A 23-year-old man has a persistent 5 cm inter-aortocaval mass after three cycles of BEP chemotherapy for a left mixed germ cell tumor. Serum tumor markers are normal. During retroperitoneal lymphadenectomy, the mass is densely adherent to the aorta and vena cava. An incisional biopsy of the mass reveals fibrosis. The next step is:

A. complete retroperitoneal lymphadenectomy.
B. terminate lymphadenectomy and follow tumor markers.
C. sample para-aortic and paracaval nodes.
D. completely resect residual mass.
E. perform left side template dissection.

96. Ultrasound of a newborn boy with an abdominal mass shows an enlarged kidney containing large cystic spaces that do not appear to communicate with one another. The best test to confirm the diagnosis is:

A. CT scan.
B. IVP.
C. retrograde pyelogram.
D. DMSA renal scan.
E. antegrade pyelogram.

97. A 38-year-old paraplegic man has a sustained erection of ten hours duration following the intracorporeal injection of 10 ug of prostaglandin E1. The next step is intracorporeal injection of:

A. epinephrine.
B. phentolamine.
C. phenylephrine.
D. terbutaline.
E. phenoxybenzamine.

98. A 26-year-old man undergoes a left radical orchiectomy for seminoma. A CT scan reveals two 3 cm inter-aortocaval nodes at L3, and one 3 cm para aortic node at L4. The AFP is 25 IU/ml (0-10 IU/ml), and beta-hCG is 8 mIU/ml (0-10 mIU/ml). The next step is:

A. infradiaphragmatic radiation therapy.
B. cisplatin-based chemotherapy.
C. infradiaphragmatic plus supradiaphragmatic radiation therapy.
D. retroperitoneal lymphadenectomy.
E. retroperitoneal lymphadenectomy plus cisplatin-based chemotherapy.

99. In patients with pelvic nodal metastasis at cystectomy for transitional cell carcinoma of the bladder, the prognosis depends on primary bladder tumor stage, the number of involved nodes and:

A. tumor grade.
B. p53 status of primary tumor.
C. DNA ploidy status of primary tumor.
D. prostatic urethral involvement.
E. number of lymph nodes removed.

100. A 27-year-old man states that since a radical orchiectomy for Stage A seminoma six months previously, the frequency and quality of his erections have been poor. He received radiotherapy to periaortic nodes. The last treatment was two months after the orchiectomy. His chest x-ray, serum markers, glucose, and testosterone are normal. The next step is:

A. intracavernosal injection therapy.
B. sexual dysfunction counseling.
C. intraurethral alprostadil.
D. nocturnal penile tumescence studies.
E. testosterone patch.

101. Tumor recurrence in the wound following partial cystectomy for transitional cell carcinoma of the bladder is most effectively minimized by:

A. intravesical BCG.
B. wound irrigation and packing.
C. electrocautery.
D. postoperative radiation therapy.
E. preoperative radiation therapy.

102. In a duplicated urinary system, obstructive hydronephrosis in the lower pole system is usually due to:

A. orthotopic ureterocele.
B. ectopic ureter.
C. ureteropelvic junction obstruction.
D. ectopic ureterocele.
E. ureterovesical junction obstruction.

103. A 25-year-old man has inadequate erections since sustaining a pelvic fracture in a motor vehicle accident two years ago. After a successful urethral stricture repair, he denies any difficulty with orgasm and ejaculation. Intracavernosal injection of 15 ug of prostaglandin E_1 produces a soft erection. The next step in evaluation should be:

A. infusion cavernosography.
B. pelvic/pudendal arteriography.
C. infusion cavernosometry.
D. intracavernosal injection of 30 ug of prostaglandin E_1.
E. color Doppler study of penile arteries.

104. A 58-year-old diabetic man has gross hematuria, a small filling defect in the left renal pelvis, and a normal right collecting system and ureter on retrograde pyelography. Prior history includes three transurethral resections of Grade I, Stage Ta(O) transitional cell bladder tumors during the past two years. Serum creatinine is 2.4 mg/dl. Renal sonography is normal. Ureteral urine cytologies are positive on the left side only. The next step is:

A. percutaneous mitomycin C.
B. retrograde BCG instillation.
C. ureteroscopy.
D. percutaneous nephroscopy.
E. nephroureterectomy.

105. A newborn boy with anemia and jaundice has an abdominal ultrasound that shows a left suprarenal mass. A follow-up ultrasound at one month reveals that the mass is slightly smaller, but is now calcified. Serum alpha-fetoprotein and a urinary VMA are normal. The next step is:

A. needle aspiration.
B. abdominal CT scan.
C. abdominal MRI scan.
D. exploratory laparotomy.
E. observation.

106. A penoscrotal approach is used for implantation of a semirigid penile prosthesis. The left cylinder is placed uneventfully. However, difficulty is encountered during placement of the right cylinder. Subsequently, both cylinders appear to lie on the same side of the penis. The next step is:

A. remove both cylinders; abandon procedure.
B. leave a single cylinder on the left side.
C. place a small dilator on the left and redilate the right corpus.
D. repair septal perforation.
E. urethroscopy.

107. A 40-year-old paraplegic man has an ileocecal pouch cutaneous continent diversion. After a fall, he is unable to obtain urine on catheterization and is seen in a local emergency room. The next step is:

A. place indwelling catheter.
B. flexible cystoscopy of pouch.
C. percutaneous drainage of the pouch.
D. pouchogram.
E. surgical exploration.

108. The most compelling reason to use large bowel rather than small bowel in an undiversion procedure is a decrease in:

A. incidence of reflux.
B. intraluminal pressure.
C. incidence of malignancy.
D. mucous production.
E. incidence of bladder stones.

109. A 53-year-old diabetic man sustains a minor proximal crural perforation during primary implantation of a three-piece inflatable penile prosthesis via a penoscrotal approach. The best management is:

A. abort the procedure.
B. secure exit tubing of the ipsilateral cylinder.
C. extend corporotomy for primary repair.
D. place malleable implant.
E. direct closure via perineal approach.

110. In a patient with squamous cell carcinoma of the penis, positive inguinal lymph nodes are most likely to be present with:

A. palpable lymph nodes at initial presentation.
B. non-palpable lymph nodes and a Tis of the entire glans.
C. non-palpable lymph nodes and a 4 cm T1 lesion of the shaft.
D. non-palpable lymph nodes and a T2 lesion of the glans.
E. T1 tumors on proximal shaft and glans.

111. A ten-day-old boy with a transverse colostomy performed for a high imperforate anus has a serum chloride of 115 mEq/l, sodium of 145 mEq/l, potassium of 4.5 mEq/l, and CO_2 of 17 mEq/l. The most likely explanation for these findings is:

A. sepsis.
B. renal dysplasia.
C. severe hydronephrosis.
D. neurogenic bladder dysfunction.
E. electrolyte absorption from large bowel.

112. The most definitive study to rule out traumatic bladder rupture is:

A. pelvic CT scan.
B. cystoscopy.
C. pelvic ultrasound.
D. CT cystogram.
E. IVP.

113. A 76-year-old woman has intermittent urethral bleeding and a 0.7 cm mass at the urethral meatus. Biopsy is positive for Stage A squamous cell carcinoma. No inguinal lymphadenopathy is present, and metastatic evaluation is negative. The next step is:

A. anterior pelvic exenteration.
B. combined interstitial and external beam radiation therapy.
C. partial urethrectomy and bilateral inguinal lymphadenectomy.
D. partial urethrectomy and adjuvant radiation therapy.
E. partial urethrectomy.

114. A 12-year-old boy who has previously undergone an ileal augmentation catheterizes every four hours but develops recurrent bladder calculi. The most effective way to diminish recurrence is:

A. restrict dietary sodium.
B. potassium citrate.
C. irrigate daily.
D. increase frequency of catheterization.
E. catheterize in the supine position.

115. A 65-year-old man who underwent placement of an intraurethral stent for treatment of a recurrent bulbar urethral stricture has a markedly decreased urinary stream three months postoperatively. Urethroscopy demonstrates obstructive tissue protruding through the stent. The next step is:

A. balloon dilation.
B. replace stent.
C. urethroplasty.
D. suprapubic cystostomy.
E. endoscopic resection of tissue.

116. A 40-year-old woman undergoes a partial nephrectomy for an incidentally-found 4 cm renal mass. Pathology shows a metanephric adenoma with a positive surgical margin. The next step is:

A. observation.
B. long-term antibiotics.
C. radiofrequency ablation.
D. external beam radiation.
E. radical nephrectomy.

117. A premature infant requiring long-term intravenous alimentation and antibiotic therapy develops a left flank mass and hematuria. Ultrasonography reveals an echogenic mass within a hydronephrotic kidney. Renal scan shows decreased blood flow and function in the left kidney. Blood and urine cultures are positive for Candida albicans. In addition to systemic antifungal therapy, the next step is:

A. nephrectomy.
B. cutaneous loop ureterostomy.
C. percutaneous nephrostomy and antifungal irrigation.
D. ureteral stent.
E. ureteral stent and ESWL.

118. A 30-year-old man has a one-week history of priapism after a straddle injury. The corpora are aspirated, and a blood gas reveals a pH of 7.35, pO_2 of 93 mm Hg, and a pCO_2 of 30 mm Hg. He is treated twice with intracorporeal phenylephrine irrigation. Each time there is initial detumescence and rapid return to the erect state. The next step is:

A. methylene blue irrigation.
B. glanular-cavernosal shunt.
C. epinephrine irrigation.
D. oral terbutaline.
E. transarterial embolization.

119. A 22-year-old man has a Stage II nonseminomatous germ cell tumor. Serum AFP is 3,000 IU/ml and beta-hCG is 5,000 mIU/ml. One week after starting the first of four planned cycles of bleomycin, etoposide, and cisplatin chemotherapy, the serum AFP has risen to 3,200 IU/ml and beta-hCG to 6,000 mIU/ml. Chest x-ray remains normal. The next step is:

A. continue chemotherapy.
B. salvage chemotherapy.
C. stem cell transplantation.
D. increase cisplatin dose.
E. retroperitoneal lymphadenectomy.

120. A two-year-old girl has a febrile UTI with fever spikes continuing despite three days of I.V. antibiotics. The next step is:

A. VCUG.
B. MAG-3 scan.
C. DMSA scan.
D. renal ultrasound.
E. abdominal CT scan.

121. A 45-year-old man has left flank pain four hours after blunt flank trauma. Physical examination is normal. His blood pressure is 110/60 mm/Hg, pulse is 80, and urinalysis demonstrates 5 RBC/hpf. The next step is:

A. IVP.
B. CT scan.
C. renal ultrasound.
D. isotope renography.
E. observation.

122. An 18-year-old man undergoes right radical orchiectomy. Pathology reveals mixed germ cell tumor with seminoma, yolk sac and choriocarcinoma. Serum markers show beta-hCG >50,000 IU/L, AFP 150 ng/dl, and LDH two times the upper limit of normal. CT of chest, abdomen and pelvis shows a large retroperitoneal mass. Prior to starting chemotherapy, further workup should be:

A. none.
B. bone scan.
C. brain MRI scan.
D. abdominal MRI scan.
E. PET scan.

123. During embryologic development, the duct that passes through the umbilicus is the:

A. mullerian.
B. wolffian.
C. Gartner's.
D. Luschka's.
E. omphalomesenteric (vitelline).

124. A 40-year-old man suffers a gunshot to the abdomen with left ureteral transection at the L3 vertebral level, and a ureteroureterostomy is performed. Postoperatively, he is not able to flex his thigh or extend his leg. These deficits are due to dysfunction of the:

A. femoral nerve.
B. iliopsoas muscle.
C. genitofemoral nerve.
D. lateral femoral cutaneous nerve.
E. quadriceps femoris muscle.

125. The main advantage of the Turnbull loop stoma versus an end stoma for an ileal conduit is:

A. lower incidence of parastomal hernia.
B. better appliance fit.
C. lower incidence of stomal prolapse.
D. less tension on the mesentery.
E. better cosmetic appearance.

126. The blood supply to an ileal conduit originates from the following artery:

A. superior mesenteric.
B. common iliac.
C. inferior mesenteric.
D. circumflex iliac.
E. celiac.

127. The upper ureter is more susceptible to serious injury during endourological procedures because it:

A. is less distensible.
B. has thin submucosa.
C. has thin muscularis.
D. has thin mucosa.
E. has variable blood supply.

128. Six years after a radical cystectomy and continent cutaneous ileocecal diversion for a high grade, muscle invasive, transitional cell carcinoma of the bladder, a 71-year-old man has generalized weakness. Hematocrit is 31% and creatinine is 1.6 mg/dl. The most likely cause of anemia is:

A. tumor recurrence.
B. Vitamin B_{12} deficiency.
C. folic acid deficiency.
D. anemia of chronic disease.
E. iron deficiency.

129. A 56-year-old man undergoes a difficult radical perineal prostatectomy that lasts six hours. Postoperatively he has weakness of the left foot with inability to dorsiflex. The nerve most likely injured is the:

A. femoral.
B. genitofemoral.
C. sciatic.
D. obturator.
E. peroneal.

130. A 40-year-old obese Caucasian man is evaluated for irritative voiding symptoms. IVP demonstrates a teardrop-shaped elevated bladder, and medial deviation with fullness of the right ureter but no hydronephrosis. CT scan shows an extensive pelvic mass effect surrounding the bladder of fat density with areas of higher soft tissue density. The next step is:

A. pelvic laparotomy.
B. weight reduction.
C. corticosteroids.
D. percutaneous biopsy of mass.
E. renal ultrasound in three months.

131. The drug that can be reabsorbed by an ileal neobladder and result in toxic serum levels is:

A. phenytoin.
B. trimethoprim-sulfamethoxazole.
C. sildenafil.
D. warfarin.
E. furosemide.

132. A phenotypically normal three-year-old girl has bilateral inguinal hernias. During a hernia repair, a gonad is discovered within the hernia sac. Frozen section biopsy documents that it is a testis. These findings suggest:

A. persistent mullerian duct syndrome.
B. true hermaphroditism.
C. complete androgen insensitivity.
D. mixed gonadal dysgenesis.
E. adrenogenital syndrome.

133. The incision of the ureteropelvic junction during a percutaneous endopyelotomy should generally be:

A. partial thickness anteriorly.
B. full thickness posteriorly.
C. partial thickness posterolaterally.
D. full thickness laterally.
E. full thickness medially.

134. A 57-year-old woman undergoes left partial nephrectomy for a symptomatic angiomyolipoma. Ten days post operatively, she continues to drain 400 cc of urine per day from the flank. The next step is:

A. observation.
B. percutaneous nephrostomy tube.
C. ureteral stent.
D. urethral catheter.
E. surgical exploration.

135. Urinary concentration is primarily the result of which characteristic of the kidney:

A. hypertonic medullary interstitial fluid.
B. absence of antidiuretic hormone.
C. hypotonic medullary interstitial fluid.
D. high levels of antidiuretic hormone.
E. hypertonic proximal tubular fluid.

136. Sarcoidosis induces nephrolithiasis by:

A. increasing PTH secretion.
B. increasing intestinal calcium absorption.
C. decreasing renal tubular calcium absorption.
D. increasing renal tubular calcium absorption.
E. decreasing intestinal calcium absorption.

137. Three days following a right percutaneous nephrolithotomy, green fluid begins to drain through the nephrostomy tube. The patient is afebrile and has no abdominal tenderness. Contrast instilled into the tube immediately outlines the second part of the duodenum. The tube is repositioned into the renal pelvis. The next step is:

A. upper GI series.
B. nephrectomy and drainage.
C. right retrograde ureteropyelogram.
D. surgical exploration.
E. nasogastric suction and parenteral nutrition.

138. The first branch of the internal iliac (hypogastric) artery is the:

A. obliterated umbilical.
B. superior gluteal.
C. obturator.
D. superior vesical.
E. middle sacral.

139. A 20-year-old man with cystinuria has recurrent calculi despite dietary therapy and hydration. The next step is:

A. acetohydroxamic acid.
B. Tham-E.
C. N-acetylcysteine.
D. D-penicillamine.
E. alpha-mercaptopropionylglycine.

140. The most common symptom or sign of a vesicoenteric fistula is:

A. diarrhea.
B. fecaluria.
C. weight loss.
D. fever.
E. gross hematuria.

141. The posterior surface of the kidney is adjacent to the:

A. quadratus lumborum muscle and diaphragm.
B. psoas and latissimus dorsi muscles.
C. diaphragm and psoas muscle.
D. transversus abdominis and psoas muscles.
E. paraspinous and intercostal muscles.

142. Hyperuricosuria can cause calcium oxalate stones by:

A. homogenous nucleation.
B. reduction of monosodium urate.
C. heterogenous nucleation.
D. permissible incrementation.
E. induction of hypercalciuria.

143. Cyclical hematuria after cesarean section is best treated with:

A. hysterectomy.
B. danazol.
C. surgical exploration.
D. leuprolide acetate.
E. intravesical formalin.

144. In-vitro fertilization is associated with an increased incidence of which genitourinary anomaly:

A. hypospadias.
B. Wilms' tumor.
C. renal fusion anomalies.
D. exstrophy-epispadias complex.
E. ureteropelvic junction obstruction.

145. Medical therapy of idiopathic uric acid renal calculi is directed toward:

A. decreasing purine intake.
B. increasing urinary pH.
C. increasing inhibitors of uric acid crystallization.
D. decreasing uric acid production.
E. decreasing uric acid excretion.

146. A 45-year-old man has Cushing syndrome. Plasma cortisol levels are not suppressed with high-dose dexamethasone. Urinary 17-ketosteroid levels are 3124 mcg/24 hr (nl = 7-25) and urinary 17-hydroxysteroid levels are 271 mcg/24 hr (nl = 2-10). The most likely diagnosis is:

A. pituitary adenoma.
B. ectopic ACTH production.
C. adrenal adenoma.
D. adrenal carcinoma.
E. adrenal hyperplasia.

147. A 45-year-old woman undergoes an abdominal CT scan because of vague abdominal pain and moderate hypertension. This demonstrates a 3.0 cm solid right adrenal mass. The next step is:

A. MRI scan with T1 weighted image.
B. right adrenalectomy.
C. needle biopsy of the mass.
D. iodocholesterol scan.
E. adrenal function studies.

148. A 52-year-old woman has the acute onset of right flank pain. She has a long-standing history of diarrhea secondary to laxative abuse. Urinalysis shows numerous RBCs and a pH 6.5. While in the emergency room she passes a small stone. The most likely stone composition is:

A. xanthine.
B. uric acid.
C. struvite.
D. ammonium acid urate.
E. calcium phosphate.

149. A 65-year-old man with a PSA of 40 ng/ml is placed on an LH-RH agonist for metastatic prostate cancer. Six months later, he has mild low back pain. His PSA is 0.4 ng/ml and his bone scan shows improved but persistent abnormalities in the lumbosacral spine. The next step is:

A. flutamide.
B. radiotherapy to the spine.
C. strontium-89.
D. analgesics.
E. orchiectomy.

150. The most important prognostic factor in a patient with Wilms' tumor is:

A. age of the patient.
B. lymph node status.
C. intraoperative spillage.
D. tumor histology.
E. bilaterality.

Question #1 ANSWER=B

Current indications for pretransplant nephrectomy may include hypertension not controlled by dialysis and medication, persistent renal infection, renal calculi, or renal obstruction. Additional indications include severe proteinuria or polycystic kidneys symptomatic from infection, severe bleeding, or massive enlargement. Of these indications for pretransplant nephrectomy, only severe proteinuria can safely and reliably be managed by pretransplant transcatheter embolization and infarction.

Barry JM: Renal transplantation, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 10, p 345.

Question #2 ANSWER=E

If an obstructing stone is potentially associated with urinary infection, urgent drainage of the obstructed system is recommended. Because of potential difficulty negotiating a stent beyond the obstructing column of fragments, percutaneous nephrostomy is advisable. After adequate decompression of the obstructed collecting system and appropriate treatment of the infection or demonstration of sterile urine, definitive treatment with ureteroscopy or shock wave lithotripsy of the lead fragment is indicated. In some cases, the fragments will pass spontaneously after placement of the nephrostomy tube.

Pearle MS, Clayman RV: Outcomes and selection of surgical therapies of stones in the kidney and ureter, in Coe FL, Favus MJ, Pak CYC, Parks JD, Preminger DM (eds): KIDNEY STONES: MEDICAL AND SURGICAL MANAGEMENT. Philadelphia, Lippincott-Raven, 1996, chap 31, pp 709-755.

Question #3 ANSWER=B

Virtually identical margins can be achieved using the perineal approach as in retropubic prostatectomy except anteriorly. Traditionally, the dorsal vein complex and associated tissues are left on the anterior aspect of the retropubic prostatectomy specimen. Conversely, in the perineal approach, the dorsal vein complex is not ligated and the plane of dissection lies between the dorsal vein complex and the anterior aspect of the prostate, the impact of this difference upon surgical tumor control is unknown.

Weldon VE, Tavel FR, Neuwirth H, Cohen R: Patterns of positive specimen margins and detectable prostate specific antigen after radical perineal prostatectomy. J UROL 1995;153:1565-1569.

Question #4 ANSWER=B

Clean intermittent catheterization is the treatment of choice for chronic nonobstructive urinary retention. The risks and complications of this management are not significantly greater in transplant recipients than in patients with normally functioning kidneys.

Barry JM: Renal transplantation, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 10, p 345.

Question #5 ANSWER=A

Initial screening for renal tubular acidosis can be done by measuring the pH of the second voided morning urine specimen after the patient has fasted overnight. The second voided specimen is better than the first because the first voided specimen may have an elevated pH as a result of pre-fasting food intake.

Zerwekh JE: Laboratory evaluation of patients with urolithiasis, in Coe FL, Favus MJ, Pak CYC, Parks JH, Preminger GM (eds): KIDNEY STONES: MEDICAL AND SURGICAL MANAGEMENT. Philadelphia, Lippincott-Raven, 1996, pp 353-367.

Question #6 ANSWER=D

This child has a Scimitar sacrum, a congenital defect that is almost always associated with a tethered cord. A spinal MRI scan is necessary. Timed voiding and a voiding diary can be helpful but do not supplant the need for an MRI scan. More common spinal skeletal defects such as spina bifida occulta do not require further radiographic assessment.

Bauer SB, Koff SA, Jayanthi VR: Voiding dysfunction in children: Neurogenic and non-neurogenic, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 64, p 2231.

Question #7 ANSWER=A

The body mass index (BMI) is calculated by dividing the weight in kilograms by the height in meters squared. The ideal BMI is 25 or less, greater than 30 is moderately obese, and greater than 35 is defined as morbid obesity. A BMI of greater that 35 is usually a contraindication to living renal donation. The most likely diagnosis is rhabdomyolysis due to ischemic necrosis of the flank muscles and resultant myoglobinuria. The diagnosis is confirmed by measurement of the serum creatine kinase or urinary myoglobin. The best treatment is vigorous hydration and diuresis. Alkalinization has also been described in the treatment but has not been proven to be beneficial. Some patients will develop acute renal failure and may need supportive dialysis.

Kuang W, Ng CS, Matin S, Kaouk JH, El-Jack M, Gill IS: Rhabdomyolysis after laparoscopic donor nephrectomy. UROL 2002;60(5):911.

Question #8 ANSWER=B

The hyperoxaluria in this syndrome results from fat malabsorption which leads to saponification of enteric calcium. As such, there is not enough enteric calcium to effectively bind enteric oxalate. Accordingly, oxalate remains in a more soluble state and is absorbed in the colon. In addition, the presence of bile acids and fatty acids in the colon appears to increase the permeability of the colon to oxalate.

Ruml LA, Pearle MS: Medical therapy: Calcium oxalate urolithiasis. UROL CLIN N AM 1997:24;117-133.

Lingeman JE, Smith LH, Woods JR, Newman DM (eds): Medical evaluation and treatment of the stone patient. URINARY CALCULI: ESWL, ENDOUROLOGY, AND MEDICAL THERAPY. Philadelphia, Lea and Febiger, 1989, pp 84-134.

Question #9 ANSWER=A

Bowenoid papulosis differs from other types of squamous cell carcinoma in-situ by earlier onset (mean age: 28 years), multifocality, location primarily on the shaft, smaller size (2-10 mm), and papillary appearance. The clinician must be aware of this distinct entity because of its indolent behavior and spontaneous regression in many patients. These patients should be carefully observed. Radical therapy, including laser ablation, wide local incision, partial penectomy, or total penectomy, is not indicated.

Lynch DF Jr, Pettaway CA: Tumors of the penis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 83, p 2945.

Question #10 ANSWER=D

Deficiency of the periurethral rhabdosphincter is the basis for urinary incontinence following radical prostatectomy. The rhabdosphincter consists of type I slow twitch striated muscle fibers that contract slowly yet provide sustained tone. The bladder neck is not a major zone of sphincteric competence after radical prostatectomy, and the intrinsic smooth musculature of the proximal urethra is not a urinary continence mechanism. The levators are fast twitch type II striated muscles, designed to contract forcefully, rapidly, and for a short duration affording only voluntary interruption of the urinary stream without sustained continence.

Mostwin JL, Burnett AL: Anatomic aspects of urinary incontinence, in O'Donnell PD (ed): URINARY INCONTINENCE. St. Louis, Mosby-Year Book, 1997, chap 4, pp 16-25.

Nitti VW: Postprostatectomy incontinence, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 28, p 1053.

Question #11 ANSWER=D

Extracorporeal shock wave lithotripsy results in acute disruption of the diminutive arcuate veins and resultant interstitial hemorrhage within the focal area of the shock wave. As the acute injury resolves, a focus of interstitial fibrosis develops. This area of damage usually accounts for well under 1% of the total functional area of the kidney and as such is undetectable by commonly performed differential renal function studies. Glomerulosclerosis, proliferative nephritis, and nephrosclerosis are not associated with the injury incurred by SWL. Tubular necrosis may occur as part of the larger process of interstitial fibrosis.

Lingeman JE, Lifshitz DA, Evan AP: Surgical management of urinary lithiasis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 99, p 3361.

Question #12 ANSWER=C

This man by virtue of his age and androgen deprivation therapy is at increased risk for osteoporosis. The consequence of osteoporosis is an increase in bone fragility and a susceptibility to fracture. Androgen deprivation therapy increases the risk of osteoporosis and is related to the duration of therapy. Compared to age-matched controls, men on ADT have 6.5% to 17.3% higher bone loss. Furthermore, the risk of non-pathologic fracture with ADT is 4% at 5 years and 20% at 10 years. DEXA scan is the gold standard for diagnosis of osteoporosis, and is reported as compared to young adults (T-score) and age-matched (Z-score) controls. The treatment initially includes increasing physical activity on weight bearing joints and the addition of both Vitamin D and calcium. Since this patient has no clinical evidence of disease progression, there is no indication for additional treatment.

Oefelein MG, Ricchuiti V, Conrad W, et al: Skeletal fracture associated with androgen suppression induced osteoporosis: the clinical incidence and risk factors for patients with prostate cancer. J UROL 2001;166:1724-1728.

Question #13 ANSWER=A

Cyclooxygenase type 2 (inducible-COX-2) inhibitors reduce ureteral colic by reducing production of PGH2 from arachidonic acid while allowing the continued activity of cyclooxygenase type 1 (constitutive- COX-1). This affects the ureter by decreasing ureteral contractility and the sensitivity of nociceptors.

Nakada SY, Jerde TJ, Bjoring DE, Saban R. Selective cyclooxygenase-2 inhibitors reduce ureteral contraction in vitro: A better alternative for renal colic? J UROL 2000;163(2):607-612.

Gulmi FA, Felson D, Vaughan ED Jr: Pathophysiology and urinary tract obstruction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 12, p 411.

Question #14 ANSWER=B

All of the following drugs may enhance the hypoprothrombinemic response to oral anticoagulants: allopurinol, aminoglycosides, aminosalicylic acid, chloramphenicol, cimetidine, ethacrynic acid, indomethacin, isoniazid, metronidazole, miconazole, nalidixic acid, oxyphenbutazone, phenylbutazone, propoxyphene, salicylates, sulfonamides, tetracyclines, trimethoprim-sulfa-methoxazole, and Vitamin E. The semi-synthetic beta-lactam penicillins such as carbenicillin, ticarcillin, mezlocillin, and piperacillin may produce coagulation defects at high doses, especially in the presence of renal impairment. Iodinated contrast material may also produce transient abnormalities in clotting. Broad spectrum antibiotics, particularly when administered orally, may disrupt the gut flora and alter Vitamin K synthesis. Drugs such as allopurinol and metronidazole inhibit the hepatic metabolism of oral anticoagulants. Drugs such as ethacrynic acid, nalidixic acid, and sulfonamides displace oral anticoagulants from proteins and increase the amount of circulating anticoagulant.

Schaeffer AJ: Infections and inflammations of the genitourinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 14, p 515.

PHYSICIAN'S DESK REFERENCE. Montvale, Medical Economics, 1995, pp 949-950.

Question #15 ANSWER=D

Entero-conduit fistulas have been reported after ileal and right colon conduit urinary diversion. The diagnosis should be suspected in patients who present with gastrointestinal symptoms and metabolic acidosis. They are most common after pelvic irradiation. Conservative therapy is often effective with low residue diet and continuous pouch drainage. Further diagnostic evaluation with colonoscopy or pouch endoscopy is of little value, and biopsy or fulguration may enlarge the fistula. Open surgical exploration may be required if this regimen fails.

Benson MC, Olsson CA: Cutaneous continent urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 107, p 3789.

Question #16 ANSWER=A

Dilation of the ureter occurs commonly during pregnancy and is most prominent by the 22nd to 24th week. Although various experiments have suggested that estrogens, progestins, placental hormones and increased GFR may play a role in the dilation, mechanical compression is the most significant factor. Indeed, quadrupeds have a lower incidence of ureteral dilation during pregnancy than bipeds.

Weiss, RM: Physiology and pharmacology of the renal pelvis and ureter, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 11, p 377.

Question #17 ANSWER=A

The VCUG is normal. Formerly, a dilated urethra proximal to the meatus in a voiding cystogram in a female was thought to represent distal urethral stenosis. However, on another frame of this voiding cystogram, as is commonly seen, the urethra is of uniform caliber from the bladder neck to the urethral meatus. In addition, no correlation exists between the size of the urethral meatus, the radiographic picture, and the incidence of urinary infection in girls. Controlled studies have shown that instrumentation, whether it be by meatotomy, internal urethrotomy or urethral dilation, has no effect on the recurrence rate of urinary infections. Therefore, the correct answer is prophylactic antibacterial therapy which may be aided by a timed-voiding regimen.

Shortliffe LMD: Urinary tract infections in infants and children, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 54, p 1846.

Question #18 ANSWER=E

The protocol for radiation implant therapy will depend on the particular parameters for each patient to include clinical stage, serum PSA level, and Gleason score. A patient with a stage T2b Gleason 7 (4+3) and PSA greater than 15 would be considered a high risk patient. He would therefore be treated with hormone ablation, an implant and external beam radiation therapy.

Stone NN, Stock RG: Prostate brachytherapy: Treatment strategies. J UROL 1999;162(2):421-426.

Question #19 ANSWER=C

The human ejaculate contains spermatozoa and seminal plasma. The latter encompasses secretions from the prostate, seminal vesicles, Cowper's glands and the glands of Littre. The majority of this fluid (approximately 3 ml) originates in the seminal vesicles.

Partin AW, Rodriguez R: The molecular biology, endocrinology, and physiology of prostate and seminal vesicles, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 37, p 1237.

Question #20 ANSWER=D

The efficacy of estrogen for the prevention of urinary tract infections in post-menopausal women has been demonstrated in several studies. There appears to be a higher effectiveness rate in topically applied estrogen in the vagina with an improvement in lactobacillus concentrations, decreased vaginal pH and a decrease in urinary tract infection episodes from 5.9 to 0.5 episodes per year. Antimicrobial prophylaxis should be used at low dose, if used, and cranberry juice, while studied extensively, does not seem to decrease the frequency of urinary tract infections as effectively as topical estrogen. Lactobacillus probiotics, while effective in an investigational setting, have not been subject to the scrutiny of controlled trials.

Stamm WE, Norrby SR: Urinary tract infection disease panorama and challenge. J INFECT DIS 2001;103(suppl):1-4.

Question #21 ANSWER=A

The most devastating complication of mitoxantrone therapy is cardiotoxicity, which can lead to a cardiomyopathy that can be debilitating. Patients with symptoms should be screened with a MUGA scan to confirm good LV function prior to initiating therapy, and they should be monitored carefully during and after therapy. An echocardiogram should be obtained if new symptoms develop. With careful patient selection, this complication should only be observed in 2-5% of patients.

Petrylak DP: Chemotherapy for androgen-independent prostate cancer. SEM UROL ONCOL 2002;20(3):31-35.

Question #22 ANSWER=C

Several effects are observed with ureteral obstruction. At onset, there is an increase in baseline (resting) ureteral intraluminal pressure. An initial increase in intraluminal contractile pressure causes the increase in ureteral dimensions. A transient increase occurs in the amplitude and frequency of the peristaltic contraction waves. Over time, the relative difference in contractile pressures over resting pressures diminishes. Contractile frequency decreases over time but amplitude is preserved. Obstruction also alters pacemaker coupling causing discoordination of peristaltic activity.

Weiss, RM: Physiology and pharmacology of the renal pelvis and ureter, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 11, p 377.

Question #23 ANSWER=A

Treatment of oligospermic patients with human chorionic gonadotropin does not generally achieve consistent improvement in sperm concentration, sperm motility, or pregnancy rate. Estradiol and testosterone levels do rise, however.

Schlegel PN, Hardy M: Reproductive function and dysfunction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 42, p 1437.

Question #24 ANSWER=E

The best predictor of outcome after salvage prostatectomy is serum PSA level of < 10 ng/ml. Patients with PSA of < 10 ng/ml are much more likely to have favorable pathological findings and to maintain biochemical disease free status on long-term surveillance. In contrast, clinical stage and tumor grade were not as reliable predictors of outcome in the salvage setting. PSA nadir of < 0.5 ng/ml is an excellent predictor of outcomes after definitive radiation therapy but has no predictive value for patients that have failed RT and are considering salvage prostatectomy.

Eastham JA, Scardino PT: Radical prostatectomy, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 89, p 3080.

Question #25 ANSWER=C

The mechanism of epsilon-aminocaproic acid (Amicar) is to establish a clot that is resistant to the urokinase effect on plasminogen; which produces plasmin, a proteolytic enzyme with a high specificity for fibrin.

Fitzpatrick JM, Mebust WK: Minimally invasive and endoscopic management of benign prostatic hyperplasia, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 40, p 1379.

Question #26 ANSWER=C

The patient has severe oligospermia with unilateral testicular atrophy and a normal serum FSH. This constellation of clinical findings and a history of prior inguinal surgery on the side of a normal sized testis suggests the possibility of unilateral vasal obstruction. The few sperm seen on semen analysis may be coming from the unobstructed atrophic left testis. The finding of active spermatogenesis upon testicular biopsy is not diagnostic for obstruction in oligospermic patients as is the case in azoospermia. Scrotal exploration and vasography is the only method that will accurately establish the diagnosis of obstruction.

Goldstein M: Surgical management of male infertility and other scrotal disorders, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 44, p 1532.

Question #27 ANSWER=E

BCG cystitis is a common side effect of BCG therapy. A possible bacterial infection should also always be considered. Quinolone antibiotics are not indicated with a negative urine culture and actually may have some negative effect on the BCG. Similarly, antitubercular medications would abrogate the effectiveness of BCG and add the risk of hepatotoxicity. A decrease in dose intensity may hamper therapeutic efficacy. The patient's symptoms are mild to moderate and are best treated with an anti-spasmodic agent during the course of therapy.

Lamm DL: Complications of BCG immunotherapy. UROL CLIN N AM 1992;19:565-572.

van der Meijden AD PM, Klingeren BV, Steerenberg PA: The possible influence of antibiotics on results of bacillus Calmette-Guerin intravesical therapy for superficial bladder cancer. J UROL 1992;147:596-600.

Question #28 ANSWER=D

This exhibit demonstrates extravasation of contrast medial to the kidney. When this finding is noted on CT scan without perinephric hematoma or fracture, one has to suspect UPJ disruption particularly in a child. This injury should be treated promptly. If observation is elected, then it most likely will heal with stricture and subsequent obstruction. The best approach for management of this patient is to perform retrograde pyelography to confirm the injury. This should then be followed by exploration and reconstruction of the injury.

Casale AJ: Urinary tract trauma, in Gearhart JP, Rink RC, Mouriquand PDE (eds): PEDIATRIC UROLOGY. Philadelphia, WB Saunders Co, 2001, chap 59, p 933.

Question #29 ANSWER=E

There is a 98% cure rate for patients with clinical stage I nonseminomatous germ cell tumors. Concern regarding post surgical and post chemotherapy fertility and sexual activity status is high in this relatively young cohort of patients. Two cycles of cisplatin based chemotherapy after orchiectomy has no adverse impact on fertility status and sexual activity when compared to their pre surgical and pre chemotherapy status.

Bohlen D, Burkhard FC, Mills R, Sonntag RW, Studer UE: Fertility and sexual function following orchiectomy and two cycles of chemotherapy for stage I high risk nonseminomatous germ cell cancer. J UROL 2001;165:441-444.

Question #30 ANSWER=A

Failure with high grade superficial disease after two-six week courses of BCG is a poor prognostic indicator. These patients are at high risk for disease progression and death. Patients failing BCG in the first two years appear to be at a particular risk. Repeat TUR is unnecessary as this man should undergo cystectomy whether or not he has invasive disease. Interferon alone has minimal efficacy in this high-risk patient.

Malkowicz SB: Management of superficial bladder cancer, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 77, p 2785.

Question #31 ANSWER=D

Cisplatin nephrotoxicity is due to a direct toxic effect of the drug on renal tubular cells. Azotemia and dehydration are predisposing conditions which increase the risk of this complication. Cisplatin is not precipitated in the renal tubules nor does it affect glomerular hemodynamics.

Goldfarb DA, Nally JV Jr, Schreiber MJ Jr: Etiology, pathogenesis, and management of renal failure, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 8, p 272.

Question #32 ANSWER=D

90% of couples conceive in the first year of trying. After two years it is 95%. One half of couples not conceiving in the first year will conceive in the second. These rates are affected by age and other factors but are appropriate to this couple.

Taylor A: ABC of subfertility: Extent of the problem. BMJ 2003;327;434-435.

Question #33 ANSWER=A

This asymptomatic patient has developed granulomatous prostatitis. This is a common condition following intravesical BCG therapy that requires no further intervention. The other more common side effect associated with intravesical BCG therapy is bladder irritability. This symptom complex includes dysuria (91%), urinary frequency (90%), hematuria (46%), fever (24%), malaise (18%), nausea (8%), chills (8%), arthralgia (2%), and pruritus (1%).

Malkowicz SB: Management of superficial bladder cancer, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 77, p 2785.

Question #34 ANSWER=A

Bladder pressure adversely influences ureteral function. In this case, bladder pressure owing to the artificial sphincter is likely to have increased since this phenomenon has been reported in many similar patients. A CMG should be done first to exclude this before upper tract studies are repeated.

Chancellor MB, Yoshimura N: Voiding function and dysfunction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 23, p 831.

Question #35 ANSWER=B

Necrotizing soft tissue infections of the genitalia are most often due to perirectal infections, urethral stricture disease and skin trauma. Numerous causative organisms may be identified, including aerobic and anaerobic gram positive cocci, gram negative bacteria and other anaerobes. Patients with diabetes, alcoholism, obesity and immunosuppression are at increased risk of such infections. Aggressive treatment including the use of broad-spectrum antibiotics, early debridement, and meticulous wound care are essential in order to limit morbidity and mortality.

Schaeffer AJ: Infections and inflammations of the genitourinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 14, p 515.

Baskin L, Carroll PR, Cattolica EV, McAninch JW: Necrotizing soft tissue infections of the perineum and genitalia. BRI J UROL 1990;65:524-529.

Question #36 ANSWER=A

Tumor recurrence in the prostatic urethra is common following intravesical BCG therapy for superficial transitional cell carcinoma of the bladder. If the recurrence is confined to the prostatic urethral mucosa, it may be completely eradicated by the TURP. However, radical cystoprostatectomy is necessary if the tumor recurrence involves prostatic stroma, or glands. Urethrectomy or very careful follow-up, also is indicated in the latter circumstance.

Malkowicz SB: Management of superficial bladder cancer, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 77, p 2785.

Question #37 ANSWER=B

Hyperkalemic, hyperchloremic metabolic acidosis is consistent with peritoneal absorption of urine. The ground glass appearance also suggests urinary extravasation. A ruptured bladder with intraperitoneal or retroperitoneal extravasation of urine may produce minimal symptoms. The combination of hyperkalemic, hyperchloremic metabolic acidosis, elevated BUN and creatinine, anuria, and evidence of abdominal trauma should clearly suggest urinary extravasation. A cystogram or CT cystogram are the best tests to diagnose intraperitoneal bladder rupture. A renogram, noncontrast CT scan, or pelvic tap are not indicated in this scenario. While the Kayexalate is useful in reducing the patient's serum potassium, the administration of Lasix inducing further extravasation of urine into the abdominal cavity may further compound the problem.

McAninch JW, Santucci RA: Genitourinary trauma, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 105, p 3707.

Question #38 ANSWER=C

The ideal pH for growth of Candida fungi ranges from 5.1 to 6.4. Alkalinization of the urine may help resolve candiduria.

Wise GJ: Fungal and actinomycotic infections of the genitourinary system, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 22, p 797.

Question #39 ANSWER=B

The longitudinal renal ultrasound shown in the exhibit demonstrates a normal echo pattern in the lower portion of the kidney. The fluid-filled, echo-free mass in the upper pole is consistent with hydronephrosis of an upper pole duplicated collecting system.

Schulam PG, Kawashima A, Sandler CM, Barron BJ, Lamki LM, Goldman SM: Urinary tract imaging - basic principles, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 5, p 122.

Question #40 ANSWER=A

The patient most likely has an anastomotic stricture and stress incontinence. The 10 Fr catheter is occluding the bladder neck, preventing demonstration of stress incontinence. A repeat urodynamic study with a suprapubic catheter is not necessary since the bladder capacity is known to be normal and there is no evidence of instability. A cystoscopy and retrograde urethrogram would demonstrate the stricture, however these studies would not demonstrate stress incontinence. The simplest study to determine the etiology of the incontinence is removing the urodynamic catheter with the bladder full and asking the patient to Valsalva in order to evaluate sphincteric function.

Chancellor MB: Post prostatectomy incontinence, in Blaivas JG, Chancellor, MB (eds): ATLAS OF URODYNAMICS. Philadelphia, Williams & Wilkens, 1996, pp 240-250.

Nitti VW: Postprostatectomy incontinence, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 28, p 1053.

Question #41 ANSWER=A

The endoscopic and histologic appearance of the lesion is most consistent with malakoplakia. The described Michaelis-Guttman bodies are diagnostic for malakoplakia. This granulomatous process is thought to result from macrophage dysfunction due possibly to abnormally low intracellular concentrations of cyclic guanine monophosphate. Bethanechol chloride increases intracellular levels of cyclic guanine monophosphate and has proved beneficial in the treatment of malakoplakia. Many patients with malakoplakia have infected urine or histories of UTI. In this case, however, the malakoplakia did not appear to result from UTI, and antimicrobial therapy is not appropriate. The other treatments have no role in the management of malakoplakia.

Schaeffer AJ: Infections and inflammations of the genitourinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 14, p 515.

Question #42 ANSWER=E

With the widespread use of amniocentesis it has become apparent that over 90% of individuals born with 45,X/46,XY karyotypes have normal male genitalia. The infrequent presentation of these patients at a later date with either gonadal dysfunction or malignancy speaks for a normal hypothalamic-pituitary axis, and a low risk of malignancy.

Kaefer M: 45,X/46,XY Mosaicism: A spectrum of phenotypic expression and management: DIALOGUES IN PEDIATRIC UROLOGY, 2000, chap 23, pp 4-8.

Diamond DA: Sexual differentiation: Normal and abnormal, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 68, p 2395.

Question #43 ANSWER=D

This patient suffers from bladder outlet obstruction secondary to a large cystocele as indicated by a high voiding pressure and low flow rate. The obstruction secondarily causes detrusor instability and subsequent urgency incontinence. Despite reducing the cystocele, no stress incontinence can be elicited indicating good support of the urethrovesical junction. The best treatment is to repair the cystocele with a technique such as anterior colporrhaphy. The absence of stress urinary incontinence precludes the need for a pubovaginal sling and if performed alone is likely to exacerbate the obstruction. Treatment with oxybutynin in a patient with obstruction is likely to increase the postvoid residual. Although doxazosin can be used for female bladder outlet obstruction, when possible, the best treatment is to correct the underlying abnormality.

Nitti VM: Bladder outlet obstruction in women, in Nitti VM(ed): PRACTICAL URODYNAMICS, Philadelphia, WB Saunders Co, 1998, chap 17, pp 197-210.

Herschorn S, Carr LK: Vaginal reconstructive surgery for sphincteric incontinence and prolapse, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 30, p 1092.

Question #44 ANSWER=D

A number of studies have demonstrated an increase in E. coli uropathogen resistance to trimethoprim-sulfamethoxazole both in community and hospital populations in the past five to seven years. While ampicillin has the highest level of resistance, the greatest increase in resistance has occurred with trimethoprim/sulfamethoxazole (increasing from 9% to 18% resistance from 1993-1998).

Gupta K, Scholes D, Stamm W: Increase in prevalence of antimicrobial resistance amongst uropathogens causing acute uncomplicated cystitis in women. JAMA 1999:281:736-738.

Question #45 ANSWER=D

All of the listed conditions can cause hyponatremia but the syndrome of inappropriate antidiuretic hormone secretion (SIADH) is the only one associated with hypouricemia and a normal serum BUN and creatinine. SIADH is due to sustained endogenous over-production of ADH. Patients with SIADH reach a steady state in which body water is expanded by water retention but in which natriuresis prevents edema. Relative volume expansion results in an increased glomerular filtration rate, tubular sodium wasting and reduced net tubular absorption of creatinine and uric acid. Volume contracted states such as Addison's disease and chronic diarrhea are associated with hyperuricemia and pre-renal azotemia. In congestive heart failure and cirrhosis, serum uric acid is in the high normal range and the BUN and creatinine are often elevated.

Kokko JP: Disorders of fluid volume, electrolyte and acid-base balance, in Bennett JC, Plum F (eds): CECIL TEXTBOOK OF MEDICINE. Philadelphia, WB Saunders Co, 1996, pp 525-551.

Question #46 ANSWER=C

Sickle cell hemoglobinopathy accounts for one-third of cases of gross hematuria in African Americans. While hematuria occurs more regularly in patients with sickle cell disease, the problem occurs more frequently in patients with sickle cell trait because of the much higher frequency of this disorder. Although the mechanism of hematuria is not clear, presumably it results from sickling and sludging of blood in the medulla and papillae, leading to localized ischemia and papillary necrosis. Treatment of the hematuria begins with rest and hydration. Techniques reported of value include intravenous hydration, sodium bicarbonate, mannitol, and loop diuretics. Epsilon aminocaproic acid may also be of benefit though this agent should be reserved for intractable bleeding because of the risk of intrapelvic or ureteric clotting. Life-threatening hematuria can occur and should be managed with arteriography with selective arterial embolization. In rare cases, refractory patients may require endoscopic localization followed by partial or total nephrectomy.

Blumenfeld JD, Vaughan ED Jr: Renal physiology and pathophysiology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 6, p 167.

Question #47 ANSWER=B

Because INH treatment is associated with neuropathy from pyridoxine deficiency, all patients should be supplemented with 25-50 mg of pyridoxine (Vitamin B6) daily.

Wise GJ, Marella VK: Genitourinary manifestations of tuberculosis. UROL CLIN N AM 2003;30:111-121.

Question #48 ANSWER=D

Dehydration and vasopressin result in appropriate physiologic responses. Therefore, the kidney is normal and the dilute urine is a physiologic response to abnormal intake. Some patients with psychogenic polydipsia have an abnormal response to dehydration and ADH because they may sneak fluids or have no osmotic gradient in the renal medulla. Thus, the diagnosis can be difficult.

Blumenfeld JD, Vaughan ED Jr: Renal physiology and pathophysiology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 6, p 167.

Question #49 ANSWER=C

The Pelvic Organ Prolapse Quantitative (POPQ) system assigns negative numbers to structures that have not prolapsed beyond the hymen and positive numbers to structures that protrude, with the plane of the hymen defined as zero. The hymen was selected as the reference point rather than the introitus because it is more precisely identified. Stage III corresponds to prolapse beyond the hymen without complete vaginal eversion.

Herschorn S, Carr LK: Vaginal reconstructive surgery for sphincteric incontinence and prolapse, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 30, p 1092.

Question #50 ANSWER=D

Gatifloxacin and levofloxacin both exhibit a broad antibacterial spectrum of activity against gram-positive and gram-negative organisms as well as atypical organisms such as chlamydia and mycoplasma. However, gatifloxacin can prolong the QT interval and should not be used in patients on anti-arrhythmic drugs. Furthermore, gatifloxacin can cause life-threatening episodes of either hypoglycemia or hyperglycemia, especially in elderly diabetics.

Schaeffer AJ: The expanding role of fluoroquinolones. AM J MED 2002;113(1A):45S-54S.

Question #51 ANSWER=B

Combination chemotherapy with or without extirpative surgery has improved the prognosis for patients with rhabdomyosarcoma. The prostate has the worst prognosis as pertains to organ of origin, and radical surgery may be required if there is lack of response to non-operative treatment.

Ritchey M: Pediatric urologic oncology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 70, p 2469.

Question #52 ANSWER=E

The patient has 180 ml residual urine, a very high voiding pressure, and detrusor instability. All of these are evidence of outflow obstruction. Anticholinergic agents, tricyclic antidepressants, and clean intermittent catheterization will not relieve obstruction which should be treated by urethrolysis. Following this procedure, maintenance of continence is the rule.

Foster HE, McGuire EJ: Management of urethral obstruction with transvaginal urethrolysis. J UROL 1993;150:1448-1451.

Webster GD, Guralnick ML: Retropubic suspension surgery for female incontinence, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 31, p 1140.

Question #53 ANSWER=E

Fluoroquinolones are the first-line drugs for the treatment of UTIs in the elderly, especially men. Their broad spectrum of coverage and penetration into the prostate make them the preferred drugs. TMP-SMX can be considered first-line treatment in women, especially if the urinary pathogen is known to be TMP-SMX sensitive. Duration of therapy needs to be longer in the elderly, usually 10 days for women and 14-28 days for men.

Shortliffe LMD, McCue JD: Urinary tract infections at the age extremes: Pediatrics and geriatrics. AM J MED 2002;113(1A):55S-66S.

Question #54 ANSWER=A

Physiologic post-obstructive diuresis is caused by retained urea, sodium and water. Pathologic post-obstructive diuresis is caused by impairment of concentrating ability or sodium reabsorption.

Gulmi FA, Felson D, Vaughan ED Jr: Pathophysiology and urinary tract obstruction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 12, p 411.

Question #55 ANSWER=B

A cystocele or rectocele would have been readily apparent on preoperative pelvic examination. Enterocele is harder to evaluate on examination and can develop de novo in up to 15% of patients undergoing retropubic bladder neck suspension where the bladder neck is pulled anteriorly. Retropubic suspension procedures generally do not affect the apex of the vault. The patient does not have symptoms of a urethral diverticulum, and the Burch suspension does not predispose to its development.

Kiilholma PJ, Makinen J, Chancellor MB, et al: Modified Burch colposuspension for stress urinary incontinence in females. SUR, GYN & OB 1993;176:111-115.

Webster GD, Guralnick ML: Retropubic suspension surgery for female incontinence, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 31, p 1140.

Question #56 ANSWER=C

Ascending candidal pyelonephritis is most often caused by candida albicans and usually occurs in hospitalized diabetic patients with renal insufficiency with or without obstructive uropathy. It may be complicated by the presence of a ureteral stent or Foley catheter. Because this is generally an upper tract parenchymal infection, amphotericin B bladder irrigation has no role in treatment. Systemic antifungal therapy with adequate upper tract drainage is essential. Systemic antifungal therapy should be continued for a minimum of 7 to 14 days with amphotericin B or fluconazole, the drugs of choice. Amphotericin B doses are not reduced in the presence of renal failure in order to adequately treat the candidal infection. Renal toxicity may be observed. Because fluconazole is less nephrotoxic and has a more favorable toxic therapeutic pattern, it is the drug of choice in upper tract ascending candidal pyelonephritis.

Rex JH, Walsh TJ, Sobet JD, et al: Practice guidelines for the treatment of candidiasis. CLIN INFECT DIS 2000;30:662-678.

Question #57 ANSWER=D

Gouty diathesis is characterized by a low urine pH, increased tubular re-absorption of urate, hyperuricemia and hypertriglyceridemia. Clinical manifestations include arthritis and renal calculi. Gout may be associated with both uric acid as well as calcium stones. Those patients who form calcium stones are less likely to have gouty arthritis and hyperuricemia. The invariant feature of those with gouty diathesis who form either uric acid or calcium stones is a urine pH consistently less than 5.5. The treatment is the same whether the stones are composed of uric acid or calcium: pH manipulation in the form of potassium citrate. Potassium citrate increases the urine pH and reduces the concentration of undissociated urate, reducing the possibility of uric acid crystallization. In addition, the urinary citrate will increase and also provide increased inhibitor activity against calcium stone formation.

Khatchadourian J, Preminger GM, Whitson PA, Adams-Huet B, Pak CY: Clinical and biochemical presentation of gouty diathesis: Comparison of uric acid versus pure calcium stone formation. J UROL 1995;154:1665-1669.

Question #58 ANSWER=B

Cholesterol embolization of the kidneys usually affects elderly men with atherosclerotic vascular disease, and can occur spontaneously or, more commonly, following angiographic manipulation of a diseased aorta. Renal insufficiency and hypertension result from the ensuing renal ischemia. More than 40% of patients have digital infarcts. Extrarenal manifestations may involve the CNS (stroke) and gastrointestinal tracts (bleeding, infarcts, perforation). The diagnosis may be confirmed by the observation of intravascular cholesterol emboli on renal, skin, or muscle biopsy. Treatment is generally supportive. Emboli from an atrial thrombus are unlikely after intraarterial catheterization. Renal artery dissection may cause renal insufficiency and hypertension, but would not be associated with digital infarcts, and would likely have presented with acute hemorrhage. DIC and false abdominal aneurysm are unlikely to present in this manner.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 7, p 229.

Question #59 ANSWER=A

Most antimicrobial drugs used in urologic practice are excreted by the kidneys either by glomerular filtration (quinolones, most tetracyclines, sulfonamides, aminoglycosides), tubular secretion (many beta-lactans) or both. Erythromycin, rifampin, clindamycin are excreted mainly by the hepato-biliary system and doxycycline in the alimentary tract. In patients with renal insuffiency, the tetracyclines except doxycycline, sulfonamides and nitrofurantoin are contraindicated whereas dose modifications are required for TMP-SMX, the quinolones, and aminoglycosides.

Hessen MT, Kaye D: Principles of selection and use of antibacterial agents. INF DIS CLIN N AM 2000:14(2):265-279.

Question #60 ANSWER=A

The most common cause of hyperglycemia and glucosuria in patients receiving hyperalimentation is an excess rate of glucose infusion. In a patient who is tolerating a given rate of glucose infusion and abruptly develops glucosuria, sepsis may be present. Moreover, other clinical parameters of infection may not appear for several hours.

Hensle TW, Kearney MC: Fluids, electrolytes, and nutrition, in Gearhart JP, Rink RC, Mouriquand PDE (eds): PEDIATRIC UROLOGY. Philadelphia, WB Saunders Co, 2001, chap 5, pp 51-58.

Question #61 ANSWER=C

Duplex ultrasound of the renal arteries is a useful noninvasive anatomic study for the diagnosis of renal artery stenosis (RAS). Although an altered flow pattern distal to the stenosis, including decreased diastolic flow and a turbulent systolic jet, can be suggestive of RAS, the most important single indicator is a peak systolic velocity (PSV) > 180 cm/sec. The renal aortic ratio (RAR) is the ratio of renal PSV to the aortic PSV. A RAR > 3.5 indicates > 60% stenosis. The renal resistive index does not directly assess renal artery flow.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 7, p 229.

Question #62 ANSWER=D

DHEA has been used as an over-the-counter drug to increase adrenal production of androgens. In normogonadal men, little effect on hormonal parameters or PSA is seen. For men who are hypogonadal, an increase in testosterone and its metabolites (DHT, estradiol) is expected. Pregnenolone, the immediate precursor to testosterone production within the testis, is likely to decrease or remain unaffected by exogenous DHEA. PSA levels increase in hypogonadal men who receive exogenous androgens.

Young J, Couzinet B, Nahoul K, et al: Panhypopituitarism as a model to study the metabolism of dehydroepiandrosterone (DHEA) in humans. J CLIN ENDOCRIN METAB 1997;Aug;82(8):2578-2585.

Svetec DA, Canby ED, Thompson IM, Sabanegh ES Jr: The effect of parenteral testosterone replacement on prostate specific antigen in hypogonadal men with erectile dysfunction. J UROL 1997;158(5):1775-1777.

Question #63 ANSWER=E

Aldosterone is a mineralocorticoid produced in the adrenal cortex. Its main site of action is in the distal tubule. Aldosterone acts on the distal renal tubule to promote the absorption of sodium and the excretion of potassium. Renin promotes the conversion of angiotensinogen to angiotensin I. Angiotensin I is converted to angiotensin II which stimulates aldosterone release. Elevated potassium also stimulates aldosterone release. Renin is produced in the juxtaglomerular apparatus.

Blumenfeld JD, Vaughan ED Jr: Renal physiology and pathophysiology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 6, p 167.

Question #64 ANSWER=E

Cystoscopy is necessary to exclude the possibility of a foreign body in this setting.

Blaivas JG, Groutz A: Urinary incontinence: Pathophysiology, evaluation, and management overview, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 27, p 1027.

Question #65 ANSWER=A

Androgen deprivation therapy will increase body weight from increased fat mass and increase bone resorption causing osteoporosis.

Chez A, Maricic M, Nguyen P, Ahman FR, Dalkin BL: Low bone density and high percentage of body fat among men who were treated with androgen deprivation therapy for prostate cancer. CANCER 2002;95(10):2136-2144.

Question #66 ANSWER=A

This patient should undergo urodynamic evaluation to assess the etiology of the incontinence. This could be due to a variety of different factors. MRI of the spine would be indicated if the urodynamic study shows new abnormal findings. Other indications for spinal MRI include lower extremity weakness or other abnormal findings on neurologic exam. Implementing any additional treatment at this time without identifying the cause for the incontinence would be premature.

Bauer SB, Koff SA, Jayanthi VR: Voiding dysfunction in children: Neurogenic and non-neurogenic, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 64, p 2231.

Question #67 ANSWER=B

Diabetic cystopathy is characterized by the insidious onset of impaired bladder sensation which progresses to infrequent voiding and increasing of bladder capacity. Overstretching of the bladder eventually leads to impaired detrusor contractility and decreased uroflow.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract and its management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 26, p 931.

Question #68 ANSWER=A

The clinical manifestations of pheochromocytoma in the familial syndromes are the same as those in sporadic cases except that in familial syndromes, the pheochromocytomas are almost always bilateral and more frequently malignant.

Vaughan ED Jr, Blumenfeld JD, Del Pizzo J, Schichman SJ, Sosa RE: The adrenals, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 101, p 3507.

Question #69 ANSWER=A

Nephrotic syndrome, rapidly progressive glomerulonephritis and renal transplant with diminished function are common indications for renal biopsy. In a child this age, access to the kidney can be carried out with heavy sedation. The presence of severe hypertension is associated with a significant risk for hemorrhage post-biopsy.

Kale AS, Brewer ED: Management of renal failure in children, in Gonzales ET, Bauer SB (eds): PEDIATRIC UROLOGY PRACTICE. Philadelphia, Lippincott Williams and Wilkins, 1999 pp 79-90.

Question #70 ANSWER=D

The urodynamic finding of detrusor-sphincter dyssynergia indicates that a suprasacral spinal lesion is present. This cannot be explained by a L-5 lumbar disk. A herniated disk at this level should not cause an uncoordinated bladder outlet. The most likely supraspinal lesion in a woman this age would be multiple sclerosis.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract and its management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 26, p 931.

Question #71 ANSWER=D

Asymptomatic bacteriuria in young, sexually active women is a strong predictor of subsequent symptomatic urinary tract infection. Asymptomatic bacteriuria should be treated in this patient population because therapy is effective and recurrence is rare. However, in older women therapy is less effective and rapid recurrence is common.

Hooton TM, Scholes D, Stapleton AE, et al: A prospective study of asymptomatic bacteriuria in sexually active young women. NEJM 2000:343:992-997.

Question #72 ANSWER=A

Studies on various aspects of renal function demonstrate an immaturity of all of the renal functions listed except free water clearance (urinary-diluting capacity). The newborn kidney is able to dilute the urine as well as an adult, lowering urinary osmolality to 50 mOsm/l.

Chevalier R, Howards SS: Renal function in the fetus, neonate, and child, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 50, p 1765.

Question #73 ANSWER=C

The most common cause of the onset of urinary incontinence after repair of a large cystocele is underlying urethral dysfunction which is unmasked by reduction of the cystocele. Cystocele repair should not cause incontinence due to urethral and bladder denervation or obstruction of the proximal urethra. Cystocele repair is typically associated with improvement in both bladder emptying and urge incontinence. Thus, either urethral hypermobility or intrinsic sphincter deficiency is likely to be the cause of incontinence in this setting.

McGuire EJ, Clemens JQ: Pubovaginal slings, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 32, p 1151.

Question #74 ANSWER=D

Normal lactobacillus colonization of the vaginal entroitus decreases colonization of Enterobacteriaceae by maintaining an acidic vaginal fluid. It has also been demonstrated that fragmentation of lactobacillus cell walls blocks the adherence sites for Enterobacteriaceae.

Schaeffer AJ: Infections and inflammations of the genitourinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 14, p 515.

Raz R, Stamm WE: Controlled trial of enterovaginal estriol in post menopausal women with recurrent urinary tract infection. NEJM 1993;329:753-756.

Question #75 ANSWER=E

In the absence of a urinary tract infection, a VCUG or urodynamic evaluation is overly invasive. A spinal MRI scan is not warranted in the absence of any neurologic abnormality or spinal defect. Although oxybutynin is acceptable empiric treatment, it will likely make the constipation worse. Aggressive treatment of the constipation has been shown to benefit not only the encopresis, but also the urinary incontinence.

Bauer SB, Koff SA, Jayanthi VR: Voiding dysfunction in children: Neurogenic and non-neurogenic, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 64, p 2231.

Question #76 ANSWER=B

Some men with complete upper motor neuron lesions from spinal cord injury can void spontaneously into a condom catheter by reflex detrusor contraction. However, some degree of detrusor sphincter dyssynergia is usually present. After several years of voiding against a closed sphincter, bladder compliance decreases and high filling pressures lead to upper tract deterioration. Anticholinergic therapy combined with clean intermittent catheterization (CIC) should be the initial therapy. Bladder augmentation is reserved for patients who have failed IC. External sphincterectomy should not be a first line therapy in patients with hand function adequate to perform IC, assuming bladder pressures can be controlled with anticholinergics.

The literature demonstrates bethanechol does not improve bladder emptying. This drug is contraindicated in the presence of hyperreflexia and high voiding pressures.

Chancellor MB, Kiiholma P: Urodynamic evaluation of patients following spinal cord injury. SEM UROL 1992;10(2):83-94.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract and its management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 26, p 931.

Question #77 ANSWER=B

Retroperitoneal hemorrhage with a renal angiomyolipoma is the most significant complication associated with this benign tumor and occurs in up to 10% of patients. Most patients require total nephrectomy if explored. In the setting of tuberous sclerosis, bilateral disease, renal insufficiency, or other comorbidities that may affect renal function, selective renal arterial embolization should be considered and will prove definitive in most cases.

Novick AC, Campbell SC: Renal tumors, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 75, p 2672.

Question #78 ANSWER=B

Studies on sexual function in males with spina bifida have demonstrated that paternity is associated with an L5 or sacral neurologic level. This neurologic level was present in 80% of patients who fathered children. An ambulatory status and no ventriculoperitoneal shunt are other important factors associated with paternity. Serum testosterone levels are usually normal. Reflexogenic erections are present in the majority of spina bifida patients and are not predictive of paternity.

Decter RM, Furness PD, Nguyen TA, et al: Reproductive understanding, sexual functioning and testosterone levels in men with spina bifida. J UROL 1997;157:1466-1468.

Question #79 ANSWER=D

Pharmacologic activation of muscarinic receptors to enhance voiding often cause simultaneous contraction of the bladder, bladder neck and urethra preventing coordinated and complete bladder emptying.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract and its management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 26, p 931.

Question #80 ANSWER=B

The findings in this patient are a classic history as well as laboratory and radiographic findings of a juxtaglomerular cell tumor. These rare, benign tumors occur most commonly in people less than 20 years of age and are curable by surgical excision. The hypokalemia results from secondary hyperaldosteronism. Patients with aldosteronomas should have suppressed plasma renin levels. These findings are not characteristic of the other tumors listed. Pheochromocytomas cause hypertension by release of sympathetic amines and do not cause hypokalemia.

Novick AC, Campbell SC: Renal tumors, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 75, p 2672.

Question #81 ANSWER=A

This patient has high-grade reflux and a small bladder capacity with poor compliance. This is combined with high urethral resistance. Antibiotics alone with/without reimplants would be inadequate therapy. With Grade V reflux and a bladder volume of only 40 ml (which would predominantly be made up of the volume of the upper tracts) and high urethral pressure, ureteral reimplantation without correction of the poor bladder compliance would be inadequate. Clean intermittent catheterization may be helpful for the short-term; however, dangerously low compliance would make catheterization alone not optimal therapy. Augmentation with reimplants and intermittent catheterization may ultimately be the therapy of choice, but is probably not the best therapy for a two-month-old. Vesicostomy would provide temporary effective therapy.

Bauer SB, Koff SA, Jayanthi VR: Voiding dysfunction in children: Neurogenic and non-neurogenic, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 64, p 2231.

Question #82 ANSWER=E

Persistent or recurrent LUTS may occur after TURP. Since less than 20% of these men have any evidence of recurrent or persistent bladder outlet obstruction, assessment with pressure-flow studies are particularly useful to make determinations regarding the appropriateness of further surgical intervention. Many of these patients' symptoms are due to poor bladder contractility or detrusor overactivity. The urine flow test alone may be used for screening purposes, although it may be misinterpreted in the presence of high-flow, high-pressure voiding. Cystoscopy will rule out a stricture or bladder neck contracture but the presence of visually obstructing prostatic tissue does not correlate with bladder outlet obstruction.

Nitti VW, Kim Y, Combs AJ: Voiding dysfunction following transurethral resection of the prostate: Symptoms and urodynamic findings. J UROL 1997;157:600-603.

Nitti VW: Postprostatectomy incontinence, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 28, p 1053.

Question #83 ANSWER=E

Patients with von-Hippel Lindau disease may have hemangioblastomas of the cerebellum, renal cell carcinomas, and cystadenomas of the epididymis. The diagnosis, however, can often be made most easily with inspection of the retina with identification of angiomas.

Neumann HP, Berger DP, Sigmund G, Blum U, et al: Pheochromocytomas, multiple endocrine neoplasia type 2, and von Hippel-Lindau disease. NEJM 1993;329(21):1531-1538.

Question #84 ANSWER=D

Although major renal trauma can be managed conservatively, there is no consensus on the treatment of patients with significant renal injury involving a laceration extending into the collecting system with significant urinary extravasation. For patients in whom a urinoma develops, percutaneous catheter drainage should be considered initially. If the leak persists, an indwelling ureteral stent or percutaneous nephrostomy can be placed. These procedures usually obviate the need for open surgery.

McAninch JW, Santucci RA: Genitourinary trauma, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 105, p 3707.

Question #85 ANSWER=E

The 5-alpha-reducatase inhibitor finasteride, either alone or in combination, significantly reduced the risk of acute urinary retention and risk for BPH-related surgery. The use of the alpha-blocker doxazosin as monotherapy did prolong time to progression for acute urinary retention, but did not reduce overall risk for acute urinary retention.

McConnell JD, Roehrborn CG, Bautista OM, et al: The long-term effects of doxazosin, finasteride and combination therapy on the clinical progression of benign prostatic hyperplasia. NEJM 2003:349;2387-2398.

Question #86 ANSWER=A

Rash occurs in 9% of patients receiving mitomycin C instillations, and may represent a contact dermatitis. Chemical cystitis has been reported in 6-41% of patients managed with this agent.

The molecular weight of mitomycin C is so high that little is absorbed and myelosuppression is rare. A contracted bladder is also rare after mitomycin C treatment. Flu-like symptoms, which are commonly seen after BCG and interferon therapy, are uncommon after intravesical chemotherapy.

Witjes JA, Debruyne FM: Intravesical chemotherapy, in Vogelzang NJ, Scardino PT, Shipley WU, Coffey DS (eds): COMPREHENSIVE TEXTBOOK OF GENITOURINARY ONCOLOGY, ed 2. Baltimore, Williams and Wilkins, 2000, chap 25B, pp 394-408.

Question #87 ANSWER=D

Primary adrenal disease results in high cortisol secretion that is independent of ACTH production. Negative feedback at the pituitary level results in low or even undetectable ACTH levels. Negative feedback at the level of the hypothalamus also results in down regulation of corticotrophin releasing hormone.

Vaughan ED Jr, Blumenfeld JD, Del Pizzo J, Schichman SJ, Sosa RE: The adrenals, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 101, p 3507.

Question #88 ANSWER=D

Detrusor leak point pressure is the most reliable urodynamic parameter to predict the risk of upper tract deterioration after sphincterotomy. A detrusor leak point pressure of higher than 40 cm H_2O indicates that the sphincterotomy has failed.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract and its management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 26, p 931.

Question #89 ANSWER=E

Renal cell carcinomas are associated with a variety of paraneoplastic syndromes including hypercalcemia which is thought to be due to tumor production of a parathyroid related protein. This can be due to the production of this substance by the primary tumor, but is most frequently seen in patients with metastatic disease. In the absence of metastatic disease, however, resection of the primary should be undertaken. The measurement of serum parathyroid related protein would not change management in this case. The most likely site of metastatic disease described here is in the chest so a chest x-ray or CT scan should be obtained.

Kemp BE, Moseley JM, Rodda CP, et al: Parathyroid hormone related protein of malignancy: Active synthetic fragments. SCIENCE 1987;238:1568.

Novick AC, Campbell SC: Renal tumors, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 75, p 2672.

Question #90 ANSWER=E

This boy has suffered a rapid deceleration injury. A pedicle injury or complete avulsion of the UPJ should be suspected. These can both occur without hematuria. Hence, observation would be inappropriate. An abdominal tap for blood would not diagnose a renal injury. An ultrasound would likely not be diagnostic. CT scan is more likely to be diagnostic than an IVP and would help identify other abdominal injuries.

Casale AJ: Urinary tract trauma, in Gearhart JP, Rink RC, Mouriquand PDE (eds): PEDIATRIC UROLOGY. Philadelphia, WB Saunders Co, 2001, chap 59, pp 924-925.

Question #91 ANSWER=D

Release of nitric oxide, blocking calcium efflux, raising cGMP or opening potassium channels all relax penile smooth muscle. Prostaglandin E1 specifically increases cAMP. This is important since other agents may work at separate sites with the same or opposing results.

Lue TF: Physiology of penile erection and pathophysiology of erectile dysfunction and priapism, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 45, p 1591.

Question #92 ANSWER=D

Under usual circumstances a peripherally located tumor in a solitary kidney is best managed by partial nephrectomy, both for potential cure and to prevent the need for dialysis. However, the presence of a venous thrombus makes complete tumor excision less likely and is associated with a high likelihood of tumor recurrence and poor prognosis after partial nephrectomy. Given the patient's good health, long life expectancy, and episode of gross hematuria, observation is likely to result in further tumor progression, more bleeding or other local symptoms which may require intervention, and potentially metastatic disease. Laparoscopic cryoablation is an investigative technique best used for smaller tumors and will not control the tumor thrombus. Systemic immunotherapy rarely results in a response in the primary tumor and is unlikely to be curative. Thus, the best choice is radical nephrectomy which will result in the need for dialysis. A prolonged disease-free interval would make the patient eligible for subsequent renal transplantation. Selective angioinfarction of the tumor is another alternative which could be used for palliation of the bleeding, but will not be curative.

Angermeier KW, Novick AC, Streem SB, Montie JE: Nephron-sparing surgery for renal cell carcinoma with venous involvement. J UROL 1990;144:1352-1355.

Novick AC, Campbell SC: Renal tumors, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 75, p 2672.

Question #93 ANSWER=A

Urinary incontinence following surgery for posterior urethral valves is common. Although in some instances this is secondary to the primary surgery in the urethra or bladder neck, the most common finding is detrusor instability.

Gonzales ET: Posterior urethral valves and other urethral anomalies, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 63, p 2207.

Question #94 ANSWER=E

This patient has all the signs for an infected implant that is complicated by ketoacidosis. This precludes a salvage procedure or observation with antibiotics.

Brant MD, Ludlow JK, Mulcahy JJ: The prosthesis salvage operation: Immediate replacement of the infected penile prosthesis. J UROL 1996;155:155-157.

Lewis RW, Jordan GH: Surgery for erectile dysfunction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 47, p 1673.

Question #95 ANSWER=A

Following chemotherapy for retroperitoneal metastases from non-seminomatous germ cell tumors, teratoma will be found in approximately 40% of patients. When this is found, complete resection is mandatory for a number of reasons. Although the teratoma may be benign, continued growth of the tumor can lead to significant morbidity and the tumor can become unresectable. Additionally, complete pathologic evaluation will detect foci of residual cancer in up to 20% of patients.

Richie JP, Steele CS: Neoplasms in the testis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 81, p 2876.

Question #96 ANSWER=D

The diagnosis of multicystic kidney and its differentiation from hydronephrosis is usually suggested by ultrasonography. A DMSA or MAG-3 renal scan is necessary to confirm absence of renal function in the multicystic dysplastic kidney. In most cases, hydronephrosis will display prominent blood flow and renal function whereas the multicystic kidney will not. A CT scan and IVP cannot make this differentiation. A retrograde pyelogram is inappropriately invasive. While an antegrade pyelogram can provide discriminating information, it is likewise invasive and not necessary in most cases.

Glassberg KI: Renal dysgenesis and cystic disease of the kidney, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 56, p 1925.

Question #97 ANSWER=C

Blood flow to the penis is increased by drugs that elicit corporal smooth muscle relaxation. The treatment of priapism resulting from intracavernous drug therapy, if simple irrigation is unsuccessful, is with an alpha-agonist. While epinephrine would be effective, its beta-agonist activity may promote cardiovascular side effects. Therefore, phenylephrine is the correct answer.

Broderick GA, Lue TF: Evaluation and nonsurgical management of erectile dysfunction and priapism, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 46, p 1619.

Question #98 ANSWER=B

Although the histological diagnosis is seminoma, the elevated alpha-fetoprotein is indicative of a non-seminomatous testis tumor, and the patient should be managed as such. The orchiectomy specimen should be re-evaluated in detail to look for an additional germ cell elements. Given the findings on the CT scan, this patient has a clinical Stage IIC tumor. Based on the data available in the literature, it appears these patients are best served with initial chemotherapy rather than retroperitoneal lymph node dissection following the inguinal orchiectomy. The most widely utilized regimen today is three cycles of bleomycin, etoposide (VP-16), and cisplatin. If residual nodal tissue is evident after the multidrug chemotherapy, surgical excision is recommended. With the evolution of effective multi-drug regimens, radiation therapy is no longer utilized in the management of Stage IIC non-seminomatous testis tumors.

Richie JP, Steele CS: Neoplasms in the testis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 81, p 2876.

Question #99 ANSWER=E

A number of recent studies have demonstrated that the quality and extent of lymphadenectomy during radical cystectomy have significant impact on subsequent mortality from bladder cancer.

Stein JP, Cai J, Groshen S, Skinner DG.:Risk factors for patients with pelvic lymph node metastases following radical cystectomy with en bloc pelvic lymphadenectomy: The concept of lymph node density. J UROL 2003;170:35-41.

Herr HW, Bochner BH, Dalbagni G, et al: Impact of the number of lymph nodes retrieved on outcome in patients with muscle invasive bladder cancer. J UROL 2002,167:1295.

Question #100 ANSWER=B

The patient should be told that during the early months after surgery, depression and loss of vigor are common along with an impaired sense of body image and mood disturbances. Patients cured of testis cancer rarely have persistent emotional disturbances. Sexual drive does not appear to be permanently disrupted by curative therapy. Crutches such as testosterone and other drugs, such as yohimbine, should be avoided. With time and reassurance, he should recover his normal libido and potency. Reassessment of such patients one year after treatment has shown that depression and mood disturbances have usually cleared.

Lue TF: Physiology of penile erection and pathophysiology of erectile dysfunction and priapism, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 45, p 1591.

Question #101 ANSWER=E

The incidence of tumor recurrence in the wound following partial cystectomy can be reduced by preoperative radiation therapy. Without the use of preoperative radiation therapy wound implantation rates of 10-20% have been reported. This implantation rate can be reduced by the administration of 1000-1200 rads immediately preoperatively. Unfortunately, tumor recurrence rates within the bladder of as high as 70% have been reported with high grade tumors, making partial cystectomy useful in only a very small portion of patients.

Messing EM: Urothelial tumors of the urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 76, p 2732.

Question #102 ANSWER=C

Obstruction of the upper pole moiety in complete ureteral duplication is usually due to ectopic ureter or ureterocele. Obstruction in the lower pole moiety in both complete and incomplete ureteral duplication is usually due to UPJ obstruction.

Carr MC: Anomalies and surgery of the ureteropelvic junction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 57, p 1995.

Question #103 ANSWER=E

This young patient most likely has either an arterial or a neurologic injury to explain his erectile difficulty. A neurologic lesion is less likely because of his failure to respond with an erection to a reasonable dose of prostaglandin E1. Patients with neurogenic injuries frequently respond to very low doses of intracavernosal agents. The major clinical question which needs to be answered is whether or not this patient has an arterial injury. Infusion cavernosography and infusion cavernosometry are studies which demonstrate the extent and site of corporovenous leakage. Fifteen ug of prostaglandin E1 is a reasonable dose of drug to administer and increasing the dose to 30 ug would likely not produce more information. The study of choice to determine the presence of arterial disease in this clinical situation is a color Doppler study of the penile arteries before and after the intracavernosal injection of vasoactive drugs. Only after arterial disease has been diagnosed and only when operative revascularization is under consideration should pelvic/pudendal arteriography be performed.

Broderick GA, Lue TF: Evaluation and nonsurgical management of erectile dysfunction and priapism, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 46, p 1619.

Question #104 ANSWER=C

The history is suggestive of upper tract transitional cell carcinoma. The patient has renal impairment and diabetes. Presently, endoscopy for upper tract transitional cell carcinoma takes the form of ureteroscopy for biopsy and probably for excisional fulguration for ureteral lesions or small, less than 1 cm renal lesions and percutaneous nephroscopy and excision for larger renal lesions. Overall, either endosurgical approach should generally be limited to individuals with a solitary kidney and a low-grade, apparently low-stage tumor confined to a single focus or to those few individuals with two kidneys who either are too ill or have significant renal insufficiency such that nephrectomy is contraindicated.

Sagalowsky AI, Jarrett TW: Management of urothelial tumors and the renal pelvis and ureter, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 80, p 2845.

Question #105 ANSWER=E

The most likely diagnosis is adrenal hemorrhage. Although a neuroblastoma is a possibility, it is not likely in this age group. Observation with repeat sonography will confirm that the lesion is getting smaller.

Peters CA: Perinatal urology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 51, p 1781.

Question #106 ANSWER=C

Perforation of the septum between the corpora cavernosa is not uncommon, particularly distally. Distal crossover can be easily corrected by redilation of the corpus while maintaining a lateral course, and leaving a small dilator in the contralateral corpus.

Carson CC: Complications of penile prostheses and complex implementations, in Carson CC, Kirby R, Goldstein I (eds): TEXTBOOK OF ERECTILE DYSFUNCTION. Oxford, Isis, 1999, pp 435-450.

Question #107 ANSWER=D

Intraperitoneal rupture of catheterizable pouches is more common in the neurologic patient in whom sensation of pouch fullness may be less distinct. Often there is associated mild abdominal trauma, such as a fall, antecedent to the rupture. The patient needs radiographic pouch studies and pouch decompression. If the amount of urinary extravasation is small and the patient does not have a surgical abdomen, catheter drainage and antibiotic administration may suffice in treating intraperitoneal rupture of the pouch. For significant extravasation or a surgical abdomen, surgical exploration and pouch repair is required. The use of Coude-tip catheter, flexible cystoscope, and percutaneous drainage are used in acute pouch urinary retention.

Benson MC, Olsson CA: Cutaneous continent urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 107, p 3789.

Question #108 ANSWER=A

The clearest advantage is the ability to use the thicker muscle of the large bowel to tunnel an antirefluxing anastomosis. Problems with mucous are greater than with small bowel and the incidence of malignancy may be higher with large bowel. The intraluminal pressure is higher with large bowel.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 71, p 2508.

McDougal WS: Use of intestinal segments and urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 106, p 3745.

Question #109 ANSWER=B

A common intraoperative complication with penile prosthesis surgery is crural perforation. If this occurs with insertion of an inflatable device with attached tubing, placing a tunica albuginea closure suture on either side of the exit tubing to keep the cylinder in place has worked sufficiently without requiring a more extensive repair.

Lewis RW, Jordan GH: Surgery for erectile dysfunction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 47, p 1673.

Question #110 ANSWER=D

66-68% of patients with non-palpable inguinal lymph nodes and a T2 primary lesion will have positive nodes on inguinal node dissection. Fifty percent of palpable nodes at diagnosis harbor cancer with the remainder illustrating reactive hypertrophy due to inflammation associated with penile lesions. Less than 10% of superficial lesions are associated with lymph node metastasis.

Lynch DF Jr, Pettaway CA: Tumors of the penis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 83, p 2945.

Question #111 ANSWER=E

Genitourinary anomalies associated with imperforate anus are common. The most common is rectourethral fistula; present in 25% of all patients with imperforate anus and found much more commonly in the high or supra levator imperforate anus patient. Reflux is present in 19%, hydronephrosis without reflux in 12%, and dilated ureters without reflux in 7%. Bilateral renal agenesis and dysplastic kidney each comprise 2%. When a rectourethral fistula exists, urine can flow into the colon leading to electrolyte resorption and recurrent UTIs even after diverting colostomy.

Bashey JH, Skoog SJ: Imperfect anus and caudal regression syndrome, in Gonzalez ET, Bauer SB (eds): PEDIATRIC UROLOGY PRACTICE. Philadelphia, Lippincott, Williams & Wilkins, 1999, chap 37, pp 655-672.

Question #112 ANSWER=D

A CT cystogram and static cystogram are definitive imaging studies for the diagnosis of bladder rupture. Adequate distension of the bladder with contrast injection through the catheter is necessary to evaluate for bladder rupture. CT cystography provides additional anatomic detail over that provided by cystography alone. Small leaks are frequently missed on urography and standard CT scans because of temporary sealing by omentum or blood clots. Only full distension and post-drainage films will identify bladder rupture in such instances.

McAninch JW, Santucci RA: Genitourinary trauma, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 105, p 3707.

Question #113 ANSWER=E

The recommended treatment of choice for squamous cell carcinoma confined to the distal one-third of the female urethra is partial urethrectomy. In some patients, a partial vulvectomy also may be necessary to ensure adequate surgical margins. As much as two-thirds of the distal urethra can be removed without compromise to continence. Inguinal lymphadenectomy is performed only in the setting of palpable nodes. Prophylactic lymphadenectomy is of no therapeutic benefit, but it can be the cause of significant morbidity.

Donat SM, Cozzi PJ, Herr HW: Surgery of penile and urethral carcinoma, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 84, p 2983.

Question #114 ANSWER=C

The development of bladder calculi is a frequent complication following bladder augmentation. A patient who has had an excessive amount of ileum resected is at risk for enteric hyperoxaluria, however, this should not occur with routine ileal augmentation. Sodium restriction is unnecessary as this is not usually due to a metabolic abnormality. Catheterization in a supine position may result in retained urine which may lead to stone formation. Potassium citrate supplementation has not proven to be effective in reducing the incidence of bladder calculi after augmentation. The most effective means of preventing stone formation is daily bladder irrigation.

Khoury AE, Salomon M, Doche R, et al: Stone formation after augmentation cystoplasty: The role of intestinal mucus. J UROL 1998;158:1133-1137.

Question #115 ANSWER=E

Hyperplastic tissue can sometimes protrude through endoluminal stents postoperatively. Careful resection of this tissue is often effective, as this hyperplastic reaction usually subsides over time.

Jordan GH: Urolume endoprosthesis for the treatment of recurrent bulbous urethral stricture. AUA UPDATE SERIES 1999, vol XIX, lesson 3, pp 18-23.

Question #116 ANSWER=A

Metanephric adenoma is a benign lesion of the kidney of uncertain etiology. It has a uniformly benign course, even with large lesions. Historically these lesions have been treated with radical nephrectomy because of inability to distinguish them from renal cancer on radiologic exam.

Novick AC, Campbell SC: Renal tumors, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 75, p 2672.

Question #117 ANSWER=C

Percutaneous nephrostomy with antegrade antifungal irrigation coupled with systemic antifungal treatment is the mainstay of successful therapy for obstructing candidiasis in the infant urinary tract. Aggressive early therapy and repetitive monitoring with ultrasonography has doubled the survival rate in the last few years from less than 50% to nearly 100%.

Shortliffe LMD: Urinary tract infections in infants and children, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 54, p 1846.

Wise GJ: Fungal and actinomycotic infections of the genitourinary system, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 22, p 797.

Question #118 ANSWER=E

The patient's history and clinical findings are all consistent with a nonischemic traumatic priapism due to an injury of the cavernosal artery with fistula formation. Although methylene blue irrigation, shunt, epinephrine irrigation, and oral terbutaline are all effective forms of treatment for priapism, the best treatment for traumatic priapism is arteriography to identify the injured vessel and then embolization. Observation is an alternative option.

Lue TF: Physiology of penile erection and pathophysiology of erectile dysfunction and priapism, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 45, p 1591.

Witt MA, Goldstein I, Tejada IS, Greenfield A, Krane RJ: Traumatic laceration of intracavernosal arteries: The pathophysiology of nonischemic, high flow, arterial priapism. J UROL 1990;143:129-132.

Question #119 ANSWER=A

An unpredictable rise in marker levels may occur from two to ten days after initiation of chemotherapy and is not associated with adverse outcome, so the correct choice is to continue with the planned therapy. A rise in tumor markers soon after initiation of therapy is probably due to tumor lysis rather than progression. Thereafter, tumor marker levels should fall exponentially with a half life of one to two days for beta-hCG and five to seven days for AFP. Plateau and subsequent rise of either marker often heralds failure of therapy.

Dodd PM, Motzer RJ, Bajorin DF: Poor-risk germ cell tumors: Recent developments. UROL CLIN N AM 1998;25:485-493.

Question #120 ANSWER=D

Persistent fever in the setting of UTI suggests an anatomic abnormality contributing to the infection, or less likely a renal abscess. In children, renal ultrasonography should be the initial imaging study for evaluation in this clinical setting. VCUG may fail to demonstrate an obstructive condition, IVP may not demonstrate a renal abscess well, and if there is absence of function in an affected renal unit, would not precisely define the condition. DMSA would not show anatomic detail. A CT scan provides enhanced anatomic detail and maybe required following a non-diagnostic ultrasound if symptoms persist.

Rushton HG: Genitourinary infections: Nonspecific infections, in Kelalis PP, King LR, Belman AB (eds): CLINICAL PEDIATRIC UROLOGY, ed 3. Philadelphia, WB Saunders Co, 1992, chap 10, p 312.

Klar A, Hurvitz H, Berkun Y, et al: Focal bacterial nephritis (lobar nephronia) in children. J PED 1996;128:850-853.

Question #121 ANSWER=E

A review of 2,254 patients with suspected renal trauma seen from 1977 to 1992 was performed by McAninch and colleagues. Of the 1,588 blunt trauma patients with microscopic hematuria and no shock, three had significant injury but these cases were discovered during imaging or exploratory laparotomy for associated injury. Follow-up of 515 of 1,004 patients (51%) who did not undergo initial imaging revealed no significant complications. Adults with blunt renal trauma, microscopic hematuria and no shock (systolic pressure <90) or major associated intra-abdominal injuries can safely be spared radiographic imaging.

Miller KS, McAninch JW: Radiographic assessment of renal trauma: Our 15 year experience. J UROL 1995;154:352-355.

Question #122 ANSWER=C

The presence of choriocarcinoma and very high beta-hCG puts this patient at risk of hematogenous metastases, especially in the brain. A brain MRI scan should be performed prior to starting any chemotherapy. The role of PET scan in this setting is still investigational.

Richie JP, Steele CS: Neoplasms in the testis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 81, p 2876.

Question #123 ANSWER=E

The vitelline or omphalomesenteric duct is an attachment from the small intestine to the umbilicus. The other ducts mentioned are not found on the anterior abdominal wall. Purulent drainage from the umbilicus, although usually from a urachal remnant may be from the vitelline duct. If at the time of surgical exploration an omphalomesenteric duct is found, these patients may require partial small bowel resection.

Park JM: Normal and anomalous development of the urogenital system, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 49, p 1737.

Question #124 ANSWER=A

The femoral nerve arises from the second, third, and fourth lumbar spinal segments. It appears at the lateral edge of the psoas muscle and descends into the thigh. It supplies a number of muscles including the quadriceps femoris complex, articularis genu, sartorius, pectineus and iliopsoas.

Berry M, Bannister LH, Standring SM: Nervous system, in Bannister LH, Berry MM, Collins P, Dyson M, Dussek JE, Ferguson MWJ (eds): GRAY'S ANATOMY, ed 38. New York, Churchill Livingstone, 1995, chap 8, pp 1280-1282.

Question #125 ANSWER=D

Use of a loop stoma usually results in less tension on the mesentery of the ileum and allows easier creation of a stomal bud. This helps avoid stomal ischemia and results in a lower incidence of stomal stenosis. The loop stoma is especially useful in the obese patient where it may be otherwise difficult to obtain a good stomal bud which projects above skin level. Because of the larger fascial defect needed to construct a loop stoma they are more prone to parastomal hernia. The defunctionalized end of a loop stoma is also prone to prolapse. A well-constructed end or loop stoma should have similar cosmetic appearance and appliance fit.

McDougal WS: Use of intestinal segments and urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 106, p 3745.

Question #126 ANSWER=A

The superior mesenteric artery is the blood supply to the small bowel and proximal colon. The inferior mesenteric artery supplies blood to the mid and distal colon. The celiac axis provides blood to the liver, spleen, stomach, pancreas and duodenum. The iliac and circumflex iliac arteries do not provide blood supply to the intestine.

Kabalin JN: Surgical anatomy of the retroperitoneum, kidneys, and ureters, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 1, p 3.

Question #127 ANSWER=C

The ureteral wall consists of three different layers. However, the composition of these layers is not constant for the entire length of the ureter. The mucosa, which is four or five cell layers thick, consists of transitional epithelium, and a lamina propria with loose or dense connective tissue, but not a distinct submucosa. The muscularis varies in its composition over the course of the ureter. In the proximal ureter, it consists of a thin, poorly defined inner circular and an outer longitudinal layer. Both the mid and distal ureter have a muscularis which is distinctly composed of an inner longitudinal, middle circular, and outer longitudinal fibers. This deficiency in the muscularis of the upper ureter and the geometric arrangement of large areas of collagenous connective tissue interspacing the muscle bundles is thought to make the upper ureter more susceptible to serious ureteral injury.

Kabalin JN: Surgical anatomy of the retroperitoneum, kidneys, and ureters, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 1, p 3.

Question #128 ANSWER=B

In patients with significant loss of ileum, Vitamin B12 malabsorption has been reported and results in megaloblastic anemia and neurological abnormalities. Thirty-five percent of patients followed over five years after a Kock pouch were found to be deficient in one series. Yearly Vitamin B12 levels should be assessed starting 1-2 years after such procedures. Replacement can be by monthly injection or weekly intranasal gel.

McDougal WS: Use of intestinal segments and urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 106, p 3745.

Question #129 ANSWER=E

The patient has an injury to the common peroneal nerve. Of the lower extremity nerves, the common peroneal nerve is at greatest risk for injury. This occurs most commonly after operations in the lithotomy position. After leaving the popliteal fossa, the nerve crosses anterolaterally around the head of the fibula. In this superficial location over the bony prominence of the knee, it is exposed to compression injury. Stretching the nerve by knee and hip flexion also increases the risk for pressure injuries. This nerve supplies the tibialis anterior which provides dorsiflexion of the foot.

Walsh PC: Anatomic radical retropubic prostatectomy, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 90, p 3107.

Brooks JD: Anatomy of the lower urinary tract and male genitalia, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 2, p 41.

Question #130 ANSWER=A

Liposarcoma cannot be excluded without performing pelvic laparotomy. The areas of increased soft tissue density seen on CT scan suggest this diagnosis. Pelvic lipomatosis is another diagnostic consideration. It is twice as common in blacks. Needle biopsy is inadequate to exclude malignancy. Medial deviation of one ureter (right) must make one suspicious of a malignancy rather than pelvic lipomatosis since the latter generally causes symmetrical bilateral abnormalities or no effect on the ureter whatsoever. Findings at laparotomy favoring the diagnosis of lipomatosis are that the fat appears normal and is not encapsulated, whereas liposarcoma and lipoma are encapsulated. Liposarcoma is adherent to surrounding structures; complete surgical removal with adjuvant radiotherapy is recommended. Later ureteral obstruction by pelvic lipomatosis can occur, indicating the need for serial renal imaging. Weight reduction and corticosteroids are of little value.

Gulmi FA, Felson D, Vaughan ED Jr: Pathophysiology and urinary tract obstruction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 12, p 411.

Question #131 ANSWER=A

Drugs which are excreted by the kidneys unchanged may be resorbed by the intestinal mucosa in urinary diversions, leading to toxic serum levels. Phenytoin is the only drug listed excreted into the urine unchanged and associated with toxicity in the setting of a urinary diversion.

McDougal WS: Use of intestinal segments and urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 106, p 3745.

Question #132 ANSWER=C

In phenotypic females undergoing bilateral inguinal hernia repair, 3-5% will have testes located within the hernia sacs. These patients are invariably found to be have a 46 XY karyotype with complete androgen insensitivity secondary to defects in the androgen receptor. The testes will still produce mullerian inhibitory factor resulting in dissolution of the mullerian structures. Despite the presence of androgens, no masculinization or genital ambiguity will develop due to the defect in the androgen receptor. Persistent mullerian duct syndrome is found in phenotypic males with either unilateral or bilateral undescended testes, testicular descent being hindered by the persistence of the internal female organs. True hermahrodites, mixed gonadal dysgenesis and adrenogenital syndrome are associated with genital ambiguity.

Diamond DA: Sexual differentiation: Normal and abnormal, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 68, p 2395.

Question #133 ANSWER=D

One anatomic study demonstrated a prominent vessel anterior to the UPJ in 65% of kidneys, and posterior to the UPJ in 6.2%. Vessels lateral to the UPJ were not observed. Lateral incision should decrease the risk of vascular injury. Therapeutic regeneration of the ureter is thought to require a full thickness incision.

Sampaio FJ: The dilemma of the crossing vessel at the ureteropelvic junction: Precise anatomic study. J ENDO 1996;10(5):411-415.

Question #134 ANSWER=C

The patient most likely has a urine leak from her partial nephrectomy. These leaks occur in approximately 15% of patients following this surgery. Placement of an internal ureteral stent generally corrects the situation without subsequent need for open repair. Greater than 95% of these patients will seal the leak with placement of a ureteral stent.

Naitoh J, Smith RB: Complications of renal surgery, in Taneja SS, Smith RB, Ehrlich RM (eds): COMPLICATIONS OF UROLOGIC SURGERY: PREVENTION AND MANAGEMENT. Philadelphia, WB Saunders Co, 2001, pp 299-325.

Question #135 ANSWER=A

Although 65% of sodium chloride and water are reabsorbed in the proximal tubule, the intraluminal fluid remains isoosmotic. Urinary concentration takes place as the tubular fluid flows through the medullary collecting ducts. The medullary interstitial hyperosmolarity in the presence of normal plasma concentrations of ADH causes water to diffuse out of medullary collecting ducts into the interstitial fluid and then into the medullary blood vessels. High ADH levels produce a more concentrated urine and low levels produce a more dilute urine.

Blumenfeld JD, Vaughan ED Jr: Renal physiology and pathophysiology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 6, p 167.

Question #136 ANSWER=B

One to 2% of patients with sarcoidosis have increased levels of 1, 25-(OH)2D produced by mononuclear phagocytes in the granulomas. Active vitamin D stimulates intestinal absorption of calcium and phosphate, suppresses PTH secretion and may augment bone resorption.

Menon M, Resnick MI: Urinary lithiasis: Etiology, diagnosis, and medical management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 96, p 3229.

Question #137 ANSWER=E

Bowel injuries occur in 0.1% of all cases of percutaneous nephrolithotomy. The most common site injured is the colon which usually occurs when the colon is retrorenal. This circumstance is more likely among patients with a megacolon or malpositioned kidney. When the colon is injured, the nephrostomy tube should be positioned until it is draining the colon (colostomy tube) and a ureteral stent should be placed for drainage of the kidney. Duodenal injuries are very rare and usually occur when the initial needle pass or dilation is made too deeply through the kidney. In the absence of infection (peritonitis), conservative management is indicated initially. Bowel rest should be instituted and adequate urinary tract drainage should be assured.

Lingeman JE, Lifshitz DA, Evan AP: Surgical management of urinary lithiasis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 99, p 3361.

Question #138 ANSWER=B

This artery supplies the pelvic viscera, muscular part of the pelvis and gluteal area. The internal iliac begins at the level of the intervertebral disc between L5 and S1 where it is crossed by the ureter. It is separated from the sacroiliac joint by the internal iliac vein and lumbosacral trunk. It divides into an anterior and posterior division at the edge of the greater sciatic foramen. The posterior trunk is more cephalad and the superior gluteal is the first branch.

Brooks JD: Anatomy of the lower urinary tract and male genitalia, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 2, p 41.

Question #139 ANSWER=E

Cystinuria should be managed initially with hydration and, perhaps, alkali therapy. The solubility of cystine does not significantly increase until the urinary pH reaches 7.5. At this pH, calcium phosphate precipitation may occur. Specific therapy would include use of either D-penicillamine or alpha-mercaptopropionylglycine. D-penicillamine is less well-tolerated and approximately 50% of patients stop this therapy due to side effects. Tham-E is an alkalinizing agent used for irrigation. Acetohydroxamic acid is a urease inhibitor used for the management of infection stones. Captopril may be effective in reducing urinary cystine excretion in patients who have not responded to therapy with alpha-mercaptopropionylglycine and D-penicillamine or who are intolerant of these agents.

Menon M, Resnick MI: Urinary lithiasis: Etiology, diagnosis, and medical management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 96, p 3229.

Question #140 ANSWER=B

The most common symptoms or signs of vesicoenteric fistulas are fecaluria, abdominal pain, and pneumaturia (48%, 43%, and 41% respectively in a recent series). Dysuria, gross hematuria, and diarrhea are less common (28%, 16%, and 11% respectively). Diverticulitis, colon cancer, and Crohn's disease account for 23% to 62%, 18% to 20%, and 6% to 9% of all vesicoenteric fistulas.

Caparros J, Sole-Balcells F: Intestinal fistulas in urology, in Libertino JA (ed), RECONSTRUCTIVE UROLOGIC SURGERY, ed 3. St. Louis, Mosby-Year Book, 1998, chap 15, pp 141-150.

Question #141 ANSWER=A

The diaphragm extends around the posterior aspect of the kidney. The anteromedial surface of the kidney is adjacent to the psoas major but the posterior surface lies adjacent to the quadratus lumborum. The transversus abdominus muscle is more ventral.

Kabalin JN: Surgical anatomy of the retroperitoneum, kidneys, and ureters, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 1, p 3.

Question #142 ANSWER=C

Hyperuricosuria may promote calcium oxalate stone formation. Increased urinary uric acid will generate sodium urate crystals that can act as a nidus to cause precipitation of calcium oxalate crystals (heterogenous nucleation). Therefore, allopurinol is a treatment option for patients with hyperuricosuric calcium oxalate urolithiasis as it decreases urinary uric acid levels.

Ruml LA, Pearle MS: Medical Therapy-Calcium Oxalate urolithiasis. UROL CLIN N AMER 1997;24:117-133.

Grover PK, Ryall RL: Urate and calcium oxalate stones: From repute to rhetoric to reality. MIN ELECTRO METAB 1994;20:361-370.

Question #143 ANSWER=C

A fistula may occur between the bladder and uterus after cesarean section. These injuries may be very hard to diagnose but are usually easy to treat. The fistula is small and typically produces dampness rather than significant incontinence. Hematuria may occur during menses. The fistula site is seen on the posterior bladder wall, and biopsy of the tract reveals chronic inflammation and endometrial tissue. Treatment of vesicouterine fistulae requires dissection of the bladder off the fistula, excision of the fistula site, and bladder and uterine closure. Interposition of omentum may be used. Future child birth is possible.

Dmochowski R: Surgery for vesicovaginal fistula, urethrovaginal fistula, and urethral diverticulum, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 35, p 1195.

Question #144 ANSWER=A

In-vitro fertilization is associated with a five-fold increased risk of hypospadias with or without associated cryptorchidism. The increased risk of male genital defects following in vitro fertilization is due to the routine use of supraphysiologic doses of progesterone to aid in embryo implantation following transfer. Progesterone acts as an anti-androgen in three separate ways; 1) Progesterone has weak affinity for the androgen receptor however in supraphysiologic doses it may compete with testosterone for receptor activation. 2) It can block the post-androgen receptor transcription of androgen-stimulated proteins. 3) It can compete with testosterone for metabolism by the enzyme 5-alpha-reductase thereby reducing the formation of the more potent androgen dihydrotestosterone.

Silver RI, Rodriquez R, Chang TS, Gearhart JP: In vitro fertilization is associated with an increased risk of hypospadias. J UROL 1999;161:1954-1957.

Kurncznk JJ, Bower C: Birth defects in infants conceived by intracytoplasmic sperm injection an alternative interpretation. BRI M J 1997;315:1260-1265.

Question #145 ANSWER=B

Patients with idiopathic uric acid stones have normal production and excretion of uric acid. Their primary abnormality is a relative increase in urinary acidity. At acid pH, uric acid tends to precipitate. Prevention of uric acid crystallization and dissolution of preformed stones is best accomplished by increasing urinary pH to 6.5-7.0. Hydration is also an important part of management.

Menon M, Resnick MI: Urinary lithiasis: Etiology, diagnosis, and medical management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 96, p 3229.

Question #146 ANSWER=D

This patient has non-suppressing elevated cortisol and high urinary ketosteriods. Multiple endocrine abnormalities are most common in adrenocortical carcinomas. Ectopic ACTH should not increase urinary ketosteroids.

Vaughan ED Jr, Blumenfeld JD, Del Pizzo J, Schichman SJ, Sosa RE: The adrenals, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 101, p 3507.

Question #147 ANSWER=E

Incidentally discovered adrenal masses represent a controversial area in management. Most agree that all lesions 6 cm or greater in diameter should be excised because of the risk of malignancy. With smaller lesions (< 3 cm) the presence of increased steroid or catecholamine production constitutes the major indication for intervention.

Vaughan ED Jr, Blumenfeld JD, Del Pizzo J, Schichman SJ, Sosa RE: The adrenals, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 101, p 3507.

Question #148 ANSWER=D

Ammonium acid urate stones are rare. They are found in patients with chronic diarrhea and a history of laxative abuse. These patients have low urinary sodium excretion. Their urinary citrate levels are usually low secondary to bicarbonate loss from the gastrointestinal tract. Urine pH is usually above 6.3; when urine pH is below 5.5 uric acid will likely precipitate. Ammonium acid urate stones are also found in patients with ileal resection or with large portions of their colon removed. Chronic diarrhea and urinary tract infection are additional risk factors. Ammonium acid urate stones are relatively radiolucent and may be mistaken for uric acid stones. Ammonium acid urate stones do not dissolve with alkalinization.

Soble JJ, Hamilton BD, Streem SB: Ammonium acid urate calculi: A reevaluation of risk factors. J UROL 1999;161:869-873.

Question #149 ANSWER=D

A complete objective response on the bone scan occurs in only 7% of patients after hormonal therapy. The low PSA in this patient indicates that he continues to have a good response to hormonal therapy and no further treatment is indicated.

Schroder FH: Hormonal therapy of prostate cancer, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 94, p 3182.

Question #150 ANSWER=D

Even though the age of the patient and the size of the tumor have an impact upon the ultimate outcome of children with Wilms tumor, they are not nearly as important as the histology of the lesion. Beckwith has clearly pointed out that children with favorable histology have a far better prognosis regardless of the stage of the lesion at the time of diagnosis than do children with unfavorable histology. Tumor spillage apparently has little to do with the ultimate outcome, and bilateral tumors would statistically appear to have a better prognosis than unilateral tumors.

Ritchey M: Pediatric urologic oncology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 70, p 2469.

Normal Laboratory Values

General Chemistry

Electrolytes

Na	135 – 145 mEq/l
K	3.5 – 5.0 mEq/l
Cl	120 – 130 mEq/l
CO_2	22 – 26 mEq/l
Ca	8.5 – 10.5 mg/dl
PO_4	2.6 – 4.5 mg/dl

Blood Urea Nitrogen (BUN)	8 – 20 mg/dl
Creatinine	0.5 – 1.5 mg/dl
Creatinine Clearance	50 – 125 ml/min
Prostate Specific Antigen (PSA)	< 4 ng/ml

Acid Phosphatase	0 – 0.8 U/l
Alanine aminotransferase (SGPT)	10 – 55 U/l
Alkaline phosphatase	45 – 115 U/l
Alpha-feto protein (AFP)	0 – 10 IU/ml
Beta–hCG	0 – 10 mIu/ml
Amylase	50 – 120 U/l
Bilirubin	0 – 0.4 mg/dl
Lactate dehydrogenase (LDH)	110 – 210 U/l
Uric acid	3.6 – 8.5 mg/dl

Hemoglobin	13 – 18 g/dl
White Blood Count (WBC)	5 – 10,000/cu mm
Platelets	150 – 350,000/cu mm

Endocrine

Aldosterone	4 – 31 ng/dl
Calcitonin	0 – 28 pg/ml
Catecholamines	< 1000 ng/l
Cortisol	0 – 10 µg/dl
Epinephrine	0 – 110 pg/ml
17-Hydroxysteroids	3 – 10 mg/day
17-Ketosteroids	2 – 7 mg/day
Metanephrines	0 – 0.9 mg/day
Parathyroid Hormone (PTH)	10 – 60 pg/ml
Plasma Renin Activity (PRA)	0.5 – 1.6 ng/ml/hr
Testosterone	300 – 1000 ng/dl
Vanillylmandellic acid (VMA)	1.4 – 6.5 mg/day

Follicle Stimulating Hormone (FSH)	1 – 15 mIU/ml
Luteinizing Hormone (LH)	3 – 18 mIU/ml

Arterial Blood Gases

PO_2	75 – 100 mm Hg
PCO_2	35 – 45 mm Hg